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Incentive Compatibility and Efficiency in the Contractual Insurer-Provider Relationship
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Economic Theory and Practical Implications:
The Case of North Carolina

Diplomarbeit im Studiengang Gesundheitsökonomie, betreut durch
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Abstract

Die Arbeit beschäftigt sich mit der optimalen Vertragsgestaltung zwischen Krankenversicherern und Leistungserbringern. Ausgehend von verschiedenen Aspekten der Vertragstheorie erfolgt eine Spezifikation auf die Besonderheiten des Gesundheitswesens. Der Fokus liegt einerseits auf einer Angleichung der Anreizstrukturen ex ante sowie andererseits auf einer effizienten Abwicklung von Interessenskonflikten nach Vertragsabschluss (ex post). Die theoriebasierten Folgerungen werden schließlich der Situation in North Carolina, USA, gegenübergestellt, welche sich durch die dort vorliegende Rahmenordnung als Referenzpunkt eignet. Ein Exkurs zum amerikanischen Gesundheitswesen vermittelt dem Leser den nötigen Hintergrund. Eine kritische Diskussion der Ergebnisse schließt die Arbeit ab.

Schlagwörter: Krankenhaus, Krankenversicherung, Gesundheitswesen, Kontrakttheorie, USA

The paper is concerned with the efficient organization of contractual relationships between health insurers and providers. An introduction to relevant aspects of contract theory is followed by their adaptation to the characteristics of the health care system. The focus lies on an *ex ante* alignment of incentive structures as well as on an efficient handling of conflicts of interest once a contract has been sealed (*ex post*). The theory based conclusions are contrasted with the situation in North Carolina, USA. Due to the implemented regulation, this state is well suited to serve as a reference. An excursus to the American health care system provides the reader with the necessary background. A discussion of results completes the paper.

Keywords: Hospital, Insurer, Health Care System, Contract Theory, USA

JEL Classification: I11, D86, L22

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beschäftigte sich während seines Studiums der Gesundheitsökonomie (Diplom) an der Universität Bayreuth vertieft mit Fragen der Systemgestaltung im Gesundheitswesen aus volkswirtschaftlicher Perspektive. Schwerpunkte in den Bereichen Neue Institutionenökonomik und Quantitative Methoden fanden während verschiedener Praktika und Auslandsstudien praktische Anwendung (z.B. NHS, England; School of Public Health, UNC at Chapel Hill, USA). Im August 2008 begann er seine Promotion im Schnittbereich VWL/Gesundheitsökonomie am Lehrstuhl von Prof. Dr. Volker Ulrich, Universität Bayreuth.

holds a degree in Health Economics (Diplom) from the University of Bayreuth. During his studies, he focused on the economic analysis of the structure and the setup of health care systems choosing the concentrations New Institutional Economics and Quantitative Methods to support this aim. Various internships, e.g. with the NHS in England, and a stay as Visiting Scholar at the School of Public Health, UNC at Chapel Hill, USA, widened his experience in this field. In August 2008, in affiliation with Prof. Dr. Volker Ulrich, University of Bayreuth, he started working on his dissertation project, which again covers a topic in the field of health economics.

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BCBS	Blue Cross Blue Shield
BCBSNC	Blue Cross Blue Shield of North Carolina
cf.	confer
CMS	Center for Medicare and Medicaid Services
DALY	Disability Adjusted Life Years
DOJ	Department of Justice
DRG	Diagnosis Related Groups
e.g.	exempli gratia
ENT	Ear, Nose and Throat
ERISA	Employee Retirements Income Security Act
et al.	et alii
etc.	et cetera
FFS	Fee-For-Service
FTC	Federal Trade Commission
GDP	Gross National Product
HDHP/SO	High Deductible Health Plan with Savings Option
HIPAA	Health Insurance Portability and Accountability Act
HMO	Health Maintenance Organization
HPAA	Department of Health Policy and Administration
i.e.	id est
IHS	Indian Health Service
IPA	Independent Practice Association
IRB	Institutional Review Board
MCO	Managed Care Organization
MRI	Magnetic Resonance Imaging
N.N.	nomen nescio
n.p.	no page
n/a	not applicable
NC	North Carolina
NCDOI	North Carolina Department of Insurance
NIE	New Institutional Economics
OB/GYN	Obstetrics and Gynecology

OECD	Organization for Economic Cooperation and Development
QR	Quasi Rent
p.	page
P4P	Pay-for-Performance
POS	Point of Service
pp.	pages
PPO	Preferred Provider Organization
PPP	Purchasing Power Parities
SPH	School of Public Health
SVR	Sachverständigenrat zur Begutachtung der gesamtwirtschaftlichen Entwicklung
SVRBEG	Sachverständigenrat zur Begutachtung der Entwicklung im Gesundheitswesen
U.S.	United States
UNC	University of North Carolina
USD	United States Dollar
VA	Veterans Administration
WHO	World Health Organization

1 Introduction

1.1 Motivation for the Research Project

The relationship between patient and physician is at the core of every health system. On this premise, the obviously significant spread of variation of health system organization across the world is astonishing. In looking for explanations, the following is likely to be part of the reason: Due to various factors like asymmetry of knowledge the patient is rarely capable of controlling all the relevant factors of this relationship. The physician herself, however, is only somewhat suitable to pursue the role of an unbiased steward of the patient's interests as she is affected by a range of contradicting incentives. Consequently, a third party is commonly required to act as a mediator, opening up a range of options.[1]

The state could play a decisive role, e.g. by extensively regulating various aspects of health-care delivery or by producing health services directly. Problems arise if political decisions are ill informed or, even worse, based on lobbyist influence and partisan ideology rather than on specific needs. Giving more responsibility to employers who have performed such tasks is another option. But potential abuse of medical information and limited capabilities of small firms are only two of several reasons that weaken this argument.[2]

A third option to be considered is stewardship through private health insurers. Provided that a competitive market can be ensured, several of the disadvantages mentioned above could be overcome. This goes along with new problems and challenges. To manage the various relationships between the different actors in the health system a high degree of freedom has to be given to insurance companies. They must be able to influence behavior of providers and patients, tailoring sophisticated contracts that account for the complex system of incentives and needs. The latter can be attempted through loose networks as well as through owned, completely integrated organizations, each having its own, very specific characteristics.[3]

1.2 Scope of the Analysis

This potentially significant power in the hands of insurance companies causes risks that must be taken seriously. To address these issues adequately it is necessary to investigate the behavior of insurance companies under these market oriented circumstances. Although there are a number of worthwhile aspects to consider, this paper focuses on the relationship

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1 Cf. *Arrow* 1963, p. 947.

2 Cf. *Breyer, Zweifel and Kifmann* 2005, pp. 431-439.

3 The advisory council for the observation of developments in the health sector explicitly elaborate on the option to allow for selective contracting of providers through insurance companies; cf. *SVRBEG* 2005, p. 23 and p. 47. Also see *Breyer, Zweifel and Kifmann* 2005, p. 439.

between insurer and provider. Since a broad continuum of organizational forms to structure the insurer provider relationship is available, it is essential to understand which parameters influence the insurers' decisions on how to structure these relationships and which configurations are likely. Finally, these results have to be assessed by their impact on the overall goals of a health care system.[4]

To reach this goal the following hypothesis has been formed which will be tested in the course of this paper, thereby trying to either verify or falsify its assumptions and conclusions in the described context: *In a market driven health system insurers find efficient ways of coordinating their contractual relationships with providers by pursuing appropriate forms of vertical integration. The thereby emerging organizations do this by efficiently overcoming problems posed through diverging interests and incentives. This helps to accomplish social goals as defined by the society, i.e. guaranteeing all citizens basic coverage.*

To compare theoretical with real-world outcomes the health care market of the state of North Carolina, U.S., will serve as a benchmark. This choice is reasonable, as in the United States a "consequence of competition law's commitment to consumers has been its willingness to accommodate the preferences of health insurers (acting as purchasers of health care services) rather than those of physicians and hospitals (acting as sellers of health care services)."[5]

Going along with this focus only the supply-side of health care services is considered in this paper, demand-side questions of incentivizing or controlling patients are omitted.[6]

1.3 Approach

To achieve this scope the following approach has been chosen, which is illustrated in Figure 1. First, Chapter One gives a brief survey of the methodology applied in this paper.

The basis for the analysis is set in Chapter Two, which presents the underlying economic theory. The goal of this chapter is to equip the reader with all economic tools employed in the course of this paper and to identify a branch of economic theory which is suitable to explain the research question. Outlining the choice of theory and giving a brief introduction into economic paradigms in general and the concepts of New Institutional Economics in particular lead to a more in-depth illustration of the different branches of contract theory. Principal-agent theory and transaction cost theory are identified as suitable means for the

[4] At the end, economics as a science is interested in societal benefits. Not only the advantages of the involved but also of the affected people are relevant. Cf. *Homann and Suchanek* 2005, pp. 18-19.

[5] *Sage, Hyman and Greenberg* 2003, p. 38.

[6] See *Cutler and Zeckhauser* 2000, pp. 566-567, for the different aspects of demand-side and supply-side measures.

purpose of this paper and are elaborated in greater detail. All this provides a theory-based framework which not only identifies parameters that are relevant in the decision making process of economic actors but also allows theory-based conclusions on incentive compatibility and organizational form.

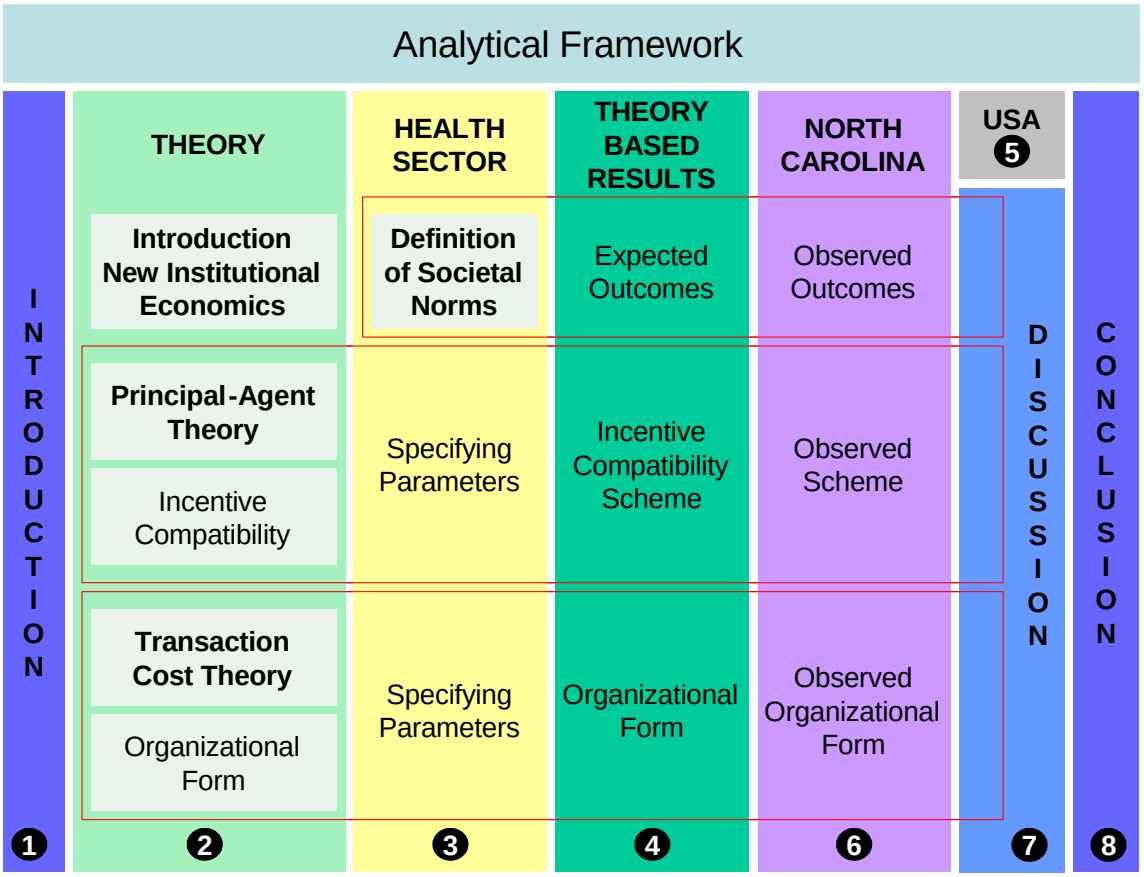

Figure 1: Analytical Framework
Source: Own illustration.

Chapter Three identifies societal norms which set the expectations that the health care market has to live up to. This provides an external benchmark in which the theory-based outcomes as well as the outcomes actually observed in North Carolina are measured against later on. Furthermore, it takes all the parameters identified as relevant in chapter two and specifies them according to their prevalence in the health sector.

In Chapter Four the economic framework is finally combined with the specified parameters. After briefly establishing the applicability of this framework theory-based predictions for each of the two aspects – principal-agent theory as well as transaction cost theory – are derived. This produces a set of outcomes that describe incentive compatibility and organizational form as well as general societal outcomes.

The introduction of practical examples has to be conducted in a very careful manner to avoid misconceptions. This is especially critical in an area like health care, as country spe-

cifics play such a decisive role in organizational matters as well as in outcomes. Thus, a whole excursus (Chapter Five) is dedicated to the United States' health care system to provide the reader with the background knowledge necessary to appreciate the 'case study' of the state of North Carolina. The rest of the paper follows the same structure as the preceding chapters, which means that a reader who is familiar with the peculiarities of the United States' health system may want to skip this insert.

Chapter Six begins with a brief introduction into North Carolina's state characteristics. In greater detail it covers market characteristics and other aspects which might present confounding variables. Then, observations for the assumptions and parameters used in the theoretical analysis are compiled, drawing from North Carolina specific literature and expert interviews. The outcomes with regard to incentive compatibility and organizational form are elaborated and finally the general outcomes on the predefined societal norms are stated.

Chapter Seven finally confronts the assumptions, parameters and outcomes from the theory application in Chapter Four with the actual observations in Chapter Six. Discrepancies are identified and different ways to explain them are looked at in more detail. This is supplemented with a consideration of limitations of this research project and suggestions for further research.

Chapter Eight concludes this paper by briefly summarizing key findings.

1.4 Methodology

1.4.1 Literature Review

As the scope of this research project is rather broad a multi-method approach has been applied. Initially extensive literature research has been conducted to feed into the theory-based chapters as well as to identify previously published evidence on the North Carolinian health care market. The primary source was the ISI Web of Science® database. Unfortunately, systematic search strings did not produce meaningful results. The main reason might be that, while on the one hand the topic is very narrow, on the other side the terminology which is used in New Institutional Economics as well as in health services research is vast and hardly standardized. Due to this issue the research strategy has been slightly amended. Originally, the focus was intended to be on 'managed care organizations'. However, this did not prove to be useful as there are many different definitions with varying purposes.[7] Thus, the focus has been put on generic terms of contracting between insurers and providers.

[7] According to *Greene* 2003, pp. 21-22, managed care can be defined in a broad sense as "[s]ystems and techniques used to control the use of healthcare services. [It] Includes a review of medical necessity, incentives to use certain providers, and case management. [And it includes] The body of clinical, financial and organizational activities designed to ensure the provision of appropriate healthcare services in a cost-

1.4.2 Qualitative Interviews

Complementary to literature based research, qualitative interviews were conducted, aiming at key stakeholders in the North Carolinian health care market. Such an approach is useful to gain insight into past and present decision-making processes as well as to learn about potential future developments.[8] In the context of this research project this was used to capture the stakeholders' perception of certain assumptions and assessments which are made in the literature. Thus, both background information and reasons for observable phenomena and outcomes in and around the insurer-provider relationship can be elaborated.[9]

As readily available publications do not cover the specified research questions, a primary data collection had to be conducted. This research project was approved by the University of North Carolina at Chapel Hill Public Health-Nursing IRB for research ethics.[10]

In early November 2006 stakeholders and key informants were identified and contacted in close collaboration with two senior faculty members of the Department of Health Policy and Administration at the University of North Carolina at Chapel Hill. The goal was to cover the perspectives of insurance companies, providers, consumers and the public regulatory entity. Finally, six individuals were purposefully selected, two from the insurance side, one as a provider representative, two professionals in the field of patient and consumer advocacy, and one expert from the public regulatory entity. Without exception all participants are in senior positions and have prominent reputations for their expertise in their fields. No individual has less than ten years of experience in the North Carolinian health care market, and most of them have worked as professionals for much longer. Informed consent was obtained from all participants.

All interviews were conducted in late January and early February 2007. A semi-structured interview guide (see Table 5, p. 100) served as an outline for all interviews. Six open-ended questions ensured that all relevant topics were covered without restricting the flexibility needed to follow up on unanticipated insights. A test-interview was conducted which allowed for revision and clarification of the wording of questions. The interviews, which lasted between 45 and 75 minutes, were taped and later transcribed. For a systematic analy-

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efficient manner. …[Managed care is] Any system of health payment or delivery arrangements where the plan attempts to control or coordinate use of health services by its enrolled members in order to contain health expenditures, improve quality, or both. Arrangements often involve a defined delivery system of providers with some form of contractual arrangement with the plan." Also see *Reinhardt* 2001, pp. 985-986.

8 Cf. *Brugha and Varvasovszky* 2000, p. 239.

9 The course of action was discussed with faculty of HPAA, SPH, UNC at Chapel Hill; as background literature served *Rubin and Rubin* 2005 and documented applications of qualitative interviewing like in *Gordon, Waines et al.* 2007, pp. 58-69.

10 For some background information and a critical assessment of ethics panels in the U.S. see *Cohen* 2007, n.p.

sis, the transcripts were coded with professional qualitative data analysis software (NVivo7, QSR International, Doncaster, Victoria, Australia).

This approach is subject to several limitations, many of which are due to time and resource restrictions. For example, the number of interviewees is small, and, although all experts were carefully selected, this may have introduced some bias. Furthermore, the principal investigator had to conduct all steps individually although tasks like coding are preferably performed by at least two independent investigators.[11] Taking into account that these and similar caveats apply, the results nonetheless should be reasonably accurate, especially as ambiguities have been validated through literature or independent experts.[12]

2 Economic Theory

2.1 Choice of Theory

Derived from the hypothesis outlined in chapter 1.2, two basic requirements a theory has to fulfill in order to successfully answer the research question can be stated. Firstly, it must give insight into the incentive structure of economic actors and its impact on their interaction. Secondly, a toolset to investigate different modes of structuring economic relationships has to be provided. The following chapter gives a brief introduction into a field of economic theory that aims to explain both aspects.

Coase 1937 confronted his colleagues with an inquiry into "The Nature of the Firm", trying to elaborate why it is sometimes reasonable to organize transactions through the organizational structure of a firm rather than through the market's price mechanism, and what relevant parameters influence this decision.[13] *Williamson's* book "Markets and Hierarchies" drew from this original work and was another major step stone that came closer to a more recent definition of a certain part of the research program that is now known as New Institutional Economics:[14] "The object is to work out the efficiency logic for managing transactions by alternative modes of governance – principally spot markets, various long-term contracts (hybrids), and hierarchies."[15] During the 70 years from Coase's essay to today, New

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[11] See *Varvasovszky and Brugha* 2000 for an introduction into the "to dos and not to dos" of stakeholder analysis and *Rubin and Rubin* 2005, who cover the interviewing aspects in more depth.

[12] Most notably one informal interview was conducted with a senior health services researcher, who has extensive experience in North Carolina's health care market. Field notes were taken to document this interview.

[13] For an overview on intention and impact of his research see *Coase* 2005, pp. 31-39.

[14] See *Williamson* 1975. *Williamson* 1991 provides a more succinct overview including some newer elements.

[15] *Williamson* 2005a, p. 1. The issue he raises is closely related to the hypothesis and the analysis of this paper. Both look into different forms of coordinating relations between economic protagonists and try to derive conclusions through looking at different parameters. For example see *Ménard* 2005, p. 286, who describes *Williamson's* discrete alignment principle: "calculative agents operating in a competitive envi-

Institutional Economics, a field that he had helped to open up, has vastly expanded and differentiated.[16] As this field is constantly being developed and many of its segments are still subject to controversial discussions, the theoretical setting that is essential for this paper is outlined in the following paragraphs.[17]

2.2 New Institutional Economics – The Framework

2.2.1 Defining New Institutional Economics – An Attempt

New Institutional Economics loosens the strict assumptions made in neoclassical theory to expand its applicability and increase its power to explain real-world phenomena. In contrast to earlier critics of neoclassic theory, it does not reject marginal analysis but provides a new foundation through a range of innovative concepts and hypotheses.[18] Before going into detail it is advised to have a general idea of what the rudiments of this stream of economics are.

Using a definition proposed by *Homann and Suchanek* 2005 economics is concerned with both explaining and shaping conditions and consequences of interactions which are based on individual considerations of advantages and disadvantages. This definition stresses the point that economics goes beyond a purely positivistic analysis, but is also able to play a creative role suggesting solutions to various problems.[19] In its core it embraces a threefold concept of economics, which is briefly outlined at this point.

Firstly, rational choice theory allows to analyze and predict individuals' behavior and actions. It is centered on the assumption that individuals maximize their utility under restrictions, which is reflected in the classic model of the homo oeconomicus.[20]

Secondly, the interactions between the individuals are put in the focus of the analysis. Looking at modern societies the interaction and exchange between individuals – for example with regard to scarce resources – pose the key problems. The dilemmas that originate from frictions between common and conflicting interests raise the question of how to overcome this situation.[21]

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ronment will adopt the mode of organization that fits comparatively better with the attributes of the transaction at stake."

16 For landmarks in the development of NIE with references to important authors and papers see *Ménard* 2005, pp. 283-284.

17 Cf. *Furubotn and Richter* 2005, p. 3.

18 Cf. *Furubotn and Richter* 2005, pp. 2-3.

19 Cf. *Homann and Suchanek* 2005, pp. 347-351. *Hurley* 2000, pp. 55-118, discusses different approaches of normative economics in the health sector.

20 Cf. *Homann and Suchanek* 2005, p. 363.

21 This is in accordance with *Simon* 1957, pp. 196-197, who states that Robinson Crusoe, alone on his island, is only a very first step to understand decision making in social groups. *Buchanan* 2001, p. 28, shares this emphasis on interactions by contrasting the traditional definition of economics, mainly based on scarcity and maximizing behavior, with his definition of economics as "catallaxy or catallactics, the

Thirdly, institutions build the brace that connects rational choice theory and interaction theory. They can help to overcome dilemmas that would otherwise prevent a successful interaction that is in both individuals' best interest. Since institutions are conditions and restrictions as well as consequences of individuals' behavior, they are relevant in almost all situations.[22]

The following paragraphs define and explain terms and assumptions that are an integral part of this concept of economics, some of which already have been mentioned in the preceding lines, others are yet to be introduced. The list, however, is neither conclusive nor is its discussion exhaustive. It is purely intended to give a brief introduction into the analytical tools applied in this paper.[23] Key notions will be characterized in-depth later, when needed.

2.2.2 The Individual in Economic Analysis

2.2.2.1 Methodological Individualism

The above definition refers to a seemingly trivial "individual". However, many protagonists in the field of economic research – such as firms, organizations, or the state – are composites rather than real individuals. It is important to understand that these entities consist of a number of individuals with different intentions, ideas and goals. Thus, picturing such protagonists as collective entities by simply transferring attributes that are characteristic for truly individual agents, like a person, is misleading. Any behavior assumed for the larger entity has to be consistent with the outcomes that may result from the interactions of the agents that form it. This notion is known as methodological individualism.[24]

2.2.2.2 The Individual as Maximand under Restrictions

Individuals try to maximize their own benefit or utility. The term utility is used in a more general sense compared to its traditional purely monetary meaning. It is taken into account that the perception of utility is a subjective matter and can also relate to non-monetary payoffs.[25] Another important aspect is the uncertainty of payoffs, which leads to the general use of expectation values. Since wishes are basically unlimited but resources are scarce,

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'science of exchanges', including the whole realm of voluntary interaction between and among persons, and including the development and operation of the complex network of institutions that facilitate such interaction."

22 Cf. *Homann and Suchanek* 2005, pp. 352-354 and pp. 36-40.

23 For more profund introduction see *Furubotn and Richter* 2005, *Homann and Suchanek* 2005, *Erlei, Leschke and Sauerland* 1999, or *Göbel* 2002.

24 Cf. *Furubotn and Richter* 2005, p. 3, *Homann and Suchanek* 2005, p. 26, and *Erlei, Leschke and Sauerland* 1999, p. 6.

25 Some authors criticize the inclusion of non-monetary payoffs as in their opinion this might result in a loss of analytical clarity. Cf. *Göbel* 2002, p. 25.

constraints emerge. These can be presented through budget, technical, or social restrictions. When maximizing its utility under given restrictions the individual acts rationally.[26]

2.2.2.3 Bounded Rationality

However, these actions are not perfect. In order to make educated, rational decisions information is needed, which comes at a certain cost. Given limited resources, these costs are often prohibitively high – either in absolute terms beyond the budget or in marginal terms trading off the expected benefits with searching costs. Thus, individuals make rational decisions, but these are based on imperfect information.[27] This is commonly known as bounded rationality, a term coined by *Simon* 1957, who refers to the relatively small capability of the human mind compared to the complex problems to be solved.[28] Taking into account all these aspects, actors will still try to look ahead, attempting to take precautions for events that may come up, identifying potential contractual hazards, and then working out contractual ramifications.[29]

2.2.2.4 Opportunisms

A factor that increases the complexity of decision-making situations is that players are not wholly trustworthy or even "self-seeking with guile"[30]. They tend to disguise information or to deliberately distort facts. To reveal the true character of an individual is extremely costly and frequently impossible. Opportunism also includes cases of "honest disagreement", referring to the fact that two parties may contrarily interpret a contract.[31] In consequence of bounded rationality and opportunism, necessarily incomplete contracts with their own set of difficulties are needed to fill in, since comprehensive contracting is unfeasible under complex circumstances.[32]

2.2.3 Transactions and Transaction Costs

Although the transaction is the "natural unit of analysis",[33] there are various definitions at hand. The one used for the purpose of this paper is: "A transaction occurs when a good or

[26] Cf. *Homann and Suchanek* 2005, pp. 27-28. For more information on the robustness of this concept see *Milgrom and Roberts* 1992, pp. 42-43.
[27] Cf. *Furubotn and Richter* 2005, p. 4.
[28] Cf. *Simon* 1957, p. 198.
[29] Cf. *Williamson* 2005b, p. 46.
[30] *Williamson* 1975, p. 26.
[31] Cf. *Erlei, Leschke and Sauerland* 1999, p. 179.
[32] Cf. *Williamson* 1975 , p. 73, and *Furubotn and Richter* 2005, p. 5.
[33] *Williamson* 2005b, p. 47.

service is transferred across a technologically separable interface. One stage of activity terminates and another begins."[34]

The above mentioned costs for searching information are one part of what is summarized as transaction costs. These costs pay tribute to the fact that, contrary to neoclassic assumptions, using the market place for performing transactions is not without costs.[35] Transaction costs in a market are consequently defined as: costs for search and information, bargaining and decision making, and supervision and enforcement. Similar categories of costs apply for managerial or political transaction costs.[36] In the given context, the costs arising from elaborating, negotiating, monitoring and enforcing contracts are relevant.[37] As transaction costs play such a key role they will be characterized in-depth when needed.

2.2.4 Dilemmas in Transactions and their Analytical Presentation

However, looking at the conflicting interests only distorts the picture. There is also a common interest, which is the interest in realizing additional gains through cooperation in the transaction. The conflict arises over the individual contributions to the transaction and, later, over the distribution of the cooperation gains. It is a true dilemma, if the common interest is not pursued because both parties mutually expect exploitation.[38]

The situation can be visualized if gains are understood as payoffs and all potential scenarios are presented. A typical example is the prisoners' dilemma as depicted in Figure 2. Through mutual cooperation each player could double her payoffs, compared to the non-cooperation scenario. However, as, no matter which strategy player A chooses, the preferable option for B always is to defect, both will opt for the non-cooperation scenario.[39] Prima facie, it seems as if the individuals' self-interest, which features a central and very positive role in *Smith* 1895, would necessarily harm the other or even both sides of the transaction, if no additional measures are taken.[40]

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[34] *Williamson* 1985, p 1. The term "interaction", as used in chapter 2.2.1, is often applied by scholars who prefer a wider definition of transactions. For a brief discussion of this issue see *Homann and Suchanek* 2005, p. 29, footnote 7.

[35] Cf. *Furubotn and Richter* 2005, pp. 12-14.

[36] Cf. *Furubotn and Richter* 2005, pp. 51-57.

[37] Cf. *Ménard* 2005, p. 284.

[38] Cf. *Homann and Suchanek* 2005, pp. 31-32.

[39] For more information on the prisoners' dilemma see *Holler and Illing* 2003, chapter one. It should be noted that this dilemma structure is a heuristics that exposes the nucleolus of the analytical problem. As such it is quasi pre-empirical to structure the problem and elaborate the questions that have to be empirically tested. Cf. *Homann and Suchanek* 2005, pp. 362-363.

[40] Cf. *Smith* 1895, p. 184.

		A	
		Cooperate	Defect
B	Cooperate	(3/3)	(1/4)
	Defect	(4/1)	(2/2)

Figure 2: Prisoners' Dilemma
Source: *Homann and Suchanek* 2005, p. 33.

At this point it is important to note that the players have no interest in the societal gain, which is the sum of both players' payoffs. In this case the cooperation scenario would be preferable. The players only have a common interest in cooperation, if both of them can improve their situation, thereby disregarding the societal outcomes.[41] According to the methodological individualism the assumption of a collective maximand would be unsuitable.[42]

2.2.5 Institutions, Incentives and Contracts

The payoffs, however, which represent the incentives for the players to choose one option or another, can be changed.[43] For example, it is possible that a state passes a law to discourage certain uncooperative behavior. This means that, if a player chooses the defect option, she will be punished by the state, e.g. through a fine, which reduces her expected payoff. Laws are a specific, formal type of institutions, which are generally defined as a sanctioned set of rules that are widely known and are applied to a large number of cases.[44] Institutions "define the incentive structure of societies and specifically economies"[45]. They are a central part of New Institutional Economics, especially with regard to their capability to reduce transaction cost by diminishing uncertainty.[46]

In the course of this paper contracts play an important role, especially since also these determine expected payoffs; for example, through allocating cooperative profits or costs. Some authors, however, differentiate contracts from institutions. They point out that contracts are an agreement between two or another limited number of parties that cannot be generalized and is not generally known.[47] They are a mode of governance rather than part of the institutional setting.[48] Institutions play a role with regard to contracts. For example, since they provide the framework for conflict resolution, which means that their quality and

[41] Pareto-superior improvement refers to a situation in which at least one player improves its situation without reducing another player's utility; cf. *Erlei, Leschke and Sauerland* 1999, pp. 17-18.
[42] Cf. *Homann and Suchanek* 2005, p. 34 and pp. 44-45.
[43] Cf. *Homann and Suchanek* 2005, pp. 40-42 and p. 53.
[44] Cf. *Kiwit and Voigt* 1995, pp. 118-119.
[45] *North* 1994, p. 360.
[46] Cf. *Erlei, Leschke and Sauerland* 1999, pp. 23-24, and *Furubotn and Richter* 2005, pp. 6-9. For more information on institutions see *North* 1992.
[47] Cf. *Kiwit and Voigt* 1995, pp. 118-119.
[48] Cf. *Ménard and Shirley* 2005, p. 1.

sanctioning mechanism affect the level of transaction costs for administering a contract.[49] However, as for the analysis pursued in this paper, contractual variations within a given set of institutions are of interest, rather than the institutions themselves, these will not be elaborated in greater detail.[50]

2.3 Contract Theory

2.3.1 The Venue of Contract Theory

After having introduced some basic concepts, this section covers the more specific theory used in this paper, which is known as contract theory.[51] However, since a fully integrated theory of New Institutional Economics is still missing and subsets, such as contract theory, lack a completely standardized typology, the following caveats apply. Since this is by far not a trivial problem, any conceptualization chosen can be argued citing well renowned scholars. The work presented by *Gibbons* 2004 gives valuable insight into this problem.

To identify theory that is relevant with regard to the research questions posed in this paper some options are briefly sketched out in the following. Focusing on alternative theories of organization in economics *Gibbons* 2004 emphasizes that to be meaningful all theories must both describe integration **and** explicitly cover the trade-off that leads to integration for some transaction and not for others.[52] According to him the major existing theories can be differentiated in the two main categories *Ex ante Incentive Alignment* and *Ex post Decision Governance*, as presented in Table 1.

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[49] Cf. *Furubotn and Richter* 2005, p. 54.

[50] A similar approach is applied by *Furubotn and Richter* 2005, p. 136. For more information on institutions and institutional change see the literature cited above or *Furubotn and Richter* 2005, pp. 471-500.

[51] For advantages of the contract theory approach see *Williamson* 2002, pp. 438-443. Other segments of New Institutional Economics which are beyond the scope of this paper, but may nonetheless influence results in one way or another, are the macro-level institutions of the state, the legal system, regulation and institutional change; cf. *Ménard and Shirley* 2005, pp. 1-18.

[52] Cf. *Gibbons* 2004, p. 5. Integration is defined in greater detail in chapter 2.3.4.3.

Ex ante Incentive Alignment		Ex post Decision Governance	
Incentive Systems	Property Rights	Adaptation	Rent-Seeking
Holmstrom and Milgrom 1991	*Grossman and Hart* 1986	*Simon* 1953	*Williamson* 1971
Holmstrom and Milgrom 1994	*Hart and Moore* 1990	*Williamson* 1971	*Williamson* 1979
Holmstrom and Tirole 1991	*Hart* 1995	*Williamson* 1975	*Williamson* 1985
Holmstrom 1999		*Williamson* 1991	*Klein, Crawford and Alchian* 1978
		Klein and Murphy 1997	*Klein* 1988
		Klein and Murphy 1988	*Klein* 2000b
		Klein 1996	
		Klein 2000a	

Table 1: Branches of Contract Theory
Source: *Gibbons* 2004, p. 39.

The authors cited are representatives of the subcategories *Incentive Systems* and *Property Rights* as well as *Adaptation* and *Rent Seeking*.[53]

Looking at the scope of this paper as outlined in chapter 1.2, two aspects are more relevant than others. Firstly, the incentive structure between players has to be analyzed. Secondly, different forms of organization have to be scrutinized with regard to their efficiency. The category *Incentive Systems*, mainly representing agency theory, is by definition suitable to shed some light onto the first issue. For the second one it is reasonable to look at the main category *Ex post Governance* as a whole. This represents an approach taken by *Williamson*, who merges the *Adaptation* and the *Rent-seeking* aspect in his so-called transaction cost theory.[54] Examining ways how to confront agents with incentives to act in their principal's best interest is the main focus of agency theory, whereas transaction cost theory aims to explain "the existence and properties of alternative modes of organization and the trade-offs among them."[55]

Property rights theory is also a very valuable source to gain insight into these issues; however, with regard to the limited scope of this paper it receives only consideration as far as

[53] Cf. *Gibbons* 2004, p. 39. The way in which he explicitly states the formal assumptions made for each individual subcategory helps to understand the differences between various types. To stay within the scope of this paper the following will focus on the main categories only. See *Williamson* 2005b, p. 44, for a similar schema.

[54] Cf. *Gibbons* 2004, p. 12; *Gibbons* divides *Williamson's* theory into two different branches. For the purpose of this paper these are interpreted as one comprehensive theory.

[55] *Ménard* 2005, p. 281. Although agency theory can – to a certain degree – be used to explain and analyze vertical integration (cf. *Gibbons* 2004, pp. 14-16), the way it is used in this paper is strictly focused on its capacity with regard to incentives.

being relevant for the two main concepts that are applied in the following: principal-agent theory and transaction cost theory.[56]

2.3.2 Principal-Agent Theory

2.3.2.1 Measurability and Information Asymmetry

Principal-agent theory begins with the fact that generally nobody can do everything by herself, be it due to costs or complexity of a business, and that specialization and cooperation can produce various additional benefits. Consequently, tasks are often delegated to somebody else, for example through hiring.[57] The actor who does this by offering a contract is called the *principal*, the actor who accepts or rejects the offer is the *agent*.[58]

From the most basic and naïve perspective, a complete contract would overcome the prisoners' dilemma situation presented in Figure 2 by spelling out each party's duties in any possible circumstances, including all potential breaches.[59] Introducing a key assumption of principal-agent theory – asymmetry of information – this changes. The latter one implies that the agent entertains some informational advantage over the principal, either ex ante (precontractual: adverse selection), or ex post (postcontractual: moral hazard).[60] Thus, opportunistic behavior of the agent is possible. With regard to moral hazard hidden information as well as hidden action are relevant. In the first case, the agent acquires more information than the principal, in the second the agent's efforts cannot be observed by the principal.[61] Consequently, securing a 'plain vanilla' contract is not achievable at all, or is at least not desirable due to the excessively high costs that would go along with searching for information or measuring efforts.[62] If – as a last requirement – the two actors' objective functions differ, as illustrated in the following, the moral-hazard arises as a problem.[63]

2.3.2.2 Objective Functions and Risk

Taking into account that each actor aims at maximizing her own utility, and assuming basic utility and production functions, the dilemma becomes explicit. The principal's utility is

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[56] The choice of this terminology does not imply that transaction cost play no or no important role in agency theory. *Erlei, Leschke and Sauerland* 1999, pp. 69-228, embrace both theories under the key word „transaction costs" but differentiate them by linking the first one to measurement costs and characterizing the second one through governance costs.

[57] Cf. *Sappington* 1991, p. 45, and *Milgrom and Roberts* 1992, p. 25.

[58] Cf. *Furubotn and Richter* 2005, p. 564.

[59] Cf. *Milgrom and Roberts* 1992, p. 127, also for requirements necessary for complete contracting including a more specific definition.

[60] As this paper aims at the second part only, adverse selection is not considered in more detail. For more information on adverse selection see *Furubotn and Richter* 2005, pp. 222-246.

[61] Cf. *Furubotn and Richter* 2005, p. 200. See also *Göbel* 2002, pp. 98-103.

[62] *Erlei, Leschke and Sauerland* 1999 identify measurement costs as a central element of New Institutional Economics. The applicable chapters give interesting insight from this viewpoint.

[63] Cf. *Milgrom and Roberts* 1992, pp. 128-131 and 170.

defined through the agent's effort *e*, a random variable θ, and the remuneration *r* which is provided to the agent.[64]

$$U_P = c(e) + \theta - r \quad (1)$$

The agent benefits from the remuneration *r*, but faces losses through her efforts *e*.

$$U_A = r - c(e) \quad (2)$$

Consequently, a rise in *r* reduces U_P but increases U_A. Just the opposite is true for *e*. This confronts the agent with the incentive to minimize her efforts and to increase *r*. The random variable introduces risk, which is important, if concrete solutions to this problem set have to be considered.

2.3.2.3 Facing the Problem: Incentive Payment

Given hidden information and hidden action being given, the agent's efforts are difficult to observe, and she is likely to pursue her own interest rather than her principal's interest. To overcome this, the agent must be held responsible for outcomes, for example through incentive contracts.[65] In the ideal world the optimal and respectively efficient incentive contract reserves a franchising fee *f* for the principal, and the (risk neutral) agent receives the full residual income minus the franchising fee, but nothing else. The fee *f* is set equal to the agent's reservation utility, which is the minimum requirement for her to willingly accept the contract offer.[66]

$$U_P = f \quad (3)$$

$$U_A = c(e) + \theta - f \quad (4)$$

In this simplified case the goals of both parties are perfectly aligned and the agent accepts the full risk. She chooses the efficient level of *e*, balancing marginal costs and marginal benefits. The term *incentive compatibility* describes such a successful alignment of interests between principal and agent.[67]

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[64] The model is based on *Sappington* 1991, pp. 46-52. Variables are named differently to fit with the models used in chapter 4.2.

[65] Cf. *Milgrom and Roberts* 1992, p. 240. According to *Furubotn and Richter* 2005, p. 559, an incentive contract is given, "if the contractual party, who is unable to observe the other party's quality or activity, offers the other side an economic incentive to tell the truth or behave well."

[66] Cf. *Sappington* 1991, pp. 46-48, also for a definition of the franchising fee f and the general reasoning why this holds true.

[67] *Furubotn and Richter* 2005, p. 559, provide a definition of incentive compatibility: "It describes an agency contract in which the principal maximizes his utility subject to the utility-maximizing behavior of his agent. Example: The principal, knowing his agent's response function, offers him a certain profit share as an incentive." This does not imply an identical level of payoffs, but says that a cooperative strategy yields the relatively highest benefit for both. Cf. *Homann and Suchanek* 2005, p. 34 and pp. 44-45.

However, most agents are *risk averse*, for example if they cannot spread the risk over different investments.[68] Consequently, they require a risk premium. Through this a trade-off between more high powered incentives and risk insulation comes into existence. To determine the efficient contract, the risk premium has to be calculated, which is positively related to the mean and the variance of the random variable θ together with a measure of the individual's absolute risk aversion.[69]

A number of factors influence the random variable. First and most obvious, environmental circumstances which are independent of the agent's performance can impact outcomes. Second, the measurement of the agent's performance itself is often not perfect. Third, performance itself can become random, if external factors impact on the agent herself. If any of those parameters increase, the risk premium increases also. A higher risk premium reduces overall efficiency, if the principal herself can bear the risk more easily. Generally, to reach an efficient contract, costs of bearing risk have to be balanced against the benefits from providing incentives.[70]

2.3.3 Preliminary Assessment

The feasibility of designing efficient principal-agent incentive contracts relies on some key assumptions. Firstly, all contingencies are known to all parties in advance. This includes not only the principal's knowledge of the agent's reservation level utility. But it also implies that, although the actors might not be fully aware of specific future states of nature, they still have a precise understanding of which states could occur and what their probability distribution looks like, i.e., the distribution of the random variable θ.[71] Secondly, the contract execution does not present any further problems, and thirdly, once concluded, the contract persists indefinitely. However, several scholars, most prominently *Williamson*, argue that a range of other circumstances make such, in a certain way complete, contracts impossible, as the assumptions needed to make this work "vaporize maladaptation and strategizing during contract implementation"[72]. The reasons for this criticism are outlined in more detail below.

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[68] *Risk aversion* refers to a situation in which a player who is offered the choice between two outcomes with identical means but different variances opts for the one with the smaller spread. Cf. *Goldberg* 2005, p. 493.

[69] Cf. *Milgrom and Roberts* 1992, p. 210; The formula for the risk premium is ½*r(I)*Var (I) with *I* and *Var(I)* being mean and variance of the random variable θ and *r(I)* being the actor's coefficient for absolute risk aversion for gambles with mean *I*.

[70] *Milgrom and Roberts* 1992, pp. 207-208.

[71] Cf. *Sappington* 1991, pp. 47 and 61.

[72] *Williamson* 2005b, pp. 44, footnote 4. See also *Furubotn and Richter* 2005, p. 251.

Despite this fundamental criticism principal-agent theory can contribute valuable insight to this analysis. It helps to exemplify the incentive structure between different players and to identify states of incentive compatibility and moral hazard conditions.[73] Furthermore, several concepts that are currently applied to structure relationships between two actors, for example incentive payments or pay-for-performance, heavily draw from this stream of theory.[74]

To mitigate the caveats posed in principal-agent theory, chapter 2.3.4 introduces a transaction cost based approach, following mainly *Williamson*. It allows for ex post control measures, an aspect which is omitted in the principal-agent approach due to its assumed ability to foresee all contingencies, as outlined above.[75] According to the systematics described in Table 1, this more precisely means a step from *Ex ante Incentive Alignment* to *Ex post Decision Governance*, thereby adding the aspect of choice between different forms of economic organization. This scenario assumes risk neutral actors. Thus, it omits the risk sharing aspect, but focuses on the trade-off between incentive margins, and does not discriminate actors as principal and agent. Contracts are incomplete, which means that not all contingencies are taken care of ex ante.[76]

2.3.4 Transaction Cost Theory

2.3.4.1 Setting the Scene

The main insight that distinguishes the transaction cost approach from principal-agent theory is to acknowledge that there are relevant costs for bargaining after a contract has been signed. These (transaction) costs are triggered by events that had not been anticipated when the original contract was drafted.[77] One reason may be that environmental parameters have changed and both partners would benefit from a readjustment of the contract. A supplier-sales relationship can serve as an example: Assuming that the supplier can only produce item A or item B and that the original contract was signed over number x of items A, a change in the consumer demand structure – now suddenly favoring item B, promising sales

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[73] Cf. *Furubotn and Richter* 2005, p. 559.

[74] Cf. *Milgrom and Roberts* 1992, p. 391. See *Joskow* 2005, pp. 326-327, for a timeline concept that puts ex ante incentive alignment and ex post control together with other aspects in a logic order, thereby illustrating how the different steps relate to each other.

[75] Cf. *Gibbons* 2004, p. 10.

[76] Cf. *Allen and Lueck* 2005, pp. 475-476, and *Williamson* 2005b, pp. 44-45. The risk neutrality assumption is supported through the focus on intermediate product markets, a measure that poses no contradiction to the aim of this paper. Also see *Goldberg* 2005, pp. 493-495, for a more extensive discussion of the attitude towards risk in economic analysis.

[77] As *Ménard* 2005, p. 284, states: "[T]ransactions develop in environments plagued with uncertainties. Although probabilities can be attached to some so that reallocation of resources can be specified ex-ante in Arrow-Debreu type contracts, Knightian uncertainty cannot be discarded: significant decisions remain noncontractibles."

y (»x) – would make it beneficial to both parties to renegotiate the contract and to substitute item A through item B, the latter one promising higher profits for both of them. Efforts to accomplish these changes result in costs as outlined in chapter 2.2.3, which are expected to increase as the stakes of this transaction increase. Different kinds of adjustments can be achieved at varying difficulty. Quantity adjustments, for example, are easier to perform and more likely to be incentive-compatible, compared to price adjustments.[78]

Another factor that aggravates the given scenario and also opens the door to a set of new, bargaining power related issues arises when one or both sides make relation-specific *investments*. Such investments yield a higher return in this specific relationship than in their second best use.[79] In other words, the amount of non-marketable, transaction specific expenses is crucial. These can be accrued through investments in special-purpose plants as well as in transaction specific skills of the workforce.[80] The degree of specificity is expressed in the *quasi-rent* as illustrated in Figure 3.[81]

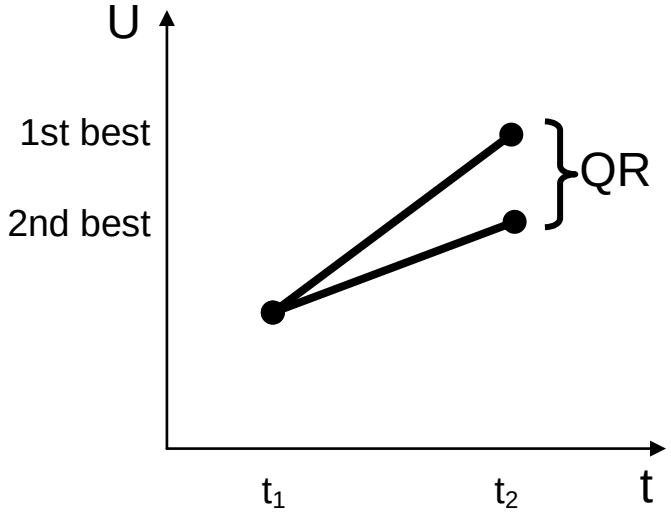

Figure 3: Quasi Rent
Source: Own illustration, based on *Pies* 2001, p. 109.

There may be a large number of potential cooperation partners in the pre-contract stage t_1, but this can radically change into a unilateral or bilateral monopoly after such investments were made. This is especially true, if the second best payoff in t_2 is less than it would be, if

[78] Cf. *Williamson* 1979, p. 251, and *Williamson* 1985, p. 76.
[79] Cf. *Furubotn and Richter* 2005, p. 568.
[80] Cf. *Williamson* 1979, pp. 239-241.
[81] According to *Rubin* 2005, p. 213, *Klein, Crawford and Alchian* 1978 have introduced the term *quasi-rents*. Also see *Holmstrom and Roberts* 1998, pp. 76-77. As *Homann and Suchanek* 2005, pp. 137-138, point out, specific investments are very common, as basically all assets that help to utilize productivity gains (human capital and physical capital) require them.

the investment had never been made.[82] Such a *fundamental transformation* changes the bargaining power in ex-post haggling, as the termination of the relationship would seriously affect the payoff of the investing party.[83]

The institutional framework, e.g. courts enforcing a contract based on existing law, cannot necessarily eliminate this threat. Real-world examples illustrate that the fines pronounced by courts sometimes fail to have the intended effect, i.e. the fines do not sufficiently change the payoffs to make cooperation a dominating strategy.[84] Furthermore, it is frequently impossible for a third party to assess the efforts made by an actor or to appreciate behavior that has not been outlined in detail, but could be assumed to be in accordance with the original intent of the contract.[85]

A situation in which a party shows opportunistic behavior and takes advantage of the other side's dependency due to relation-specific investments, and tries to appropriate the quasi-rent is called hold-up.[86] As soon as an actor has identified such a situation, there is a strong incentive to pursue this exploitative strategy.[87] Firms are generally not able to avert the hold-up through ex ante contracting, as this is too costly and does not create value.[88]

Two problems arise: Firstly, ex ante investment decisions are affected, if quasi-rents can not be secured, thus, preventing potential socially beneficial transactions. Secondly, ex post adaptation performance is diminished as renegotiation is costly, which reduces efficiency, if over time adaptations are required. Besides the allocation of rents, from a societal point of view this also has negative effects on the aggregated value of the trading relationship.[89]

2.3.4.2 Specificity, Uncertainty, and Frequency

It can be summarized that there are various contractual and organizational hazards, triggering transaction costs, resulting in the negative consequences just mentioned, all of which can be traced back to the focal unit of analysis, the transaction.[90] Three, with regard to these issues, critical dimensions of transactions can be identified. Firstly, and most important,

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[82] This worst case scenario is sometimes attributed with the term *brisance*, cf. *Homann and Suchanek* 2005, p. 300.

[83] Cf. *Williamson* 1985, pp. 61-63. *Anderson and Gatignon* 2005, pp. 410-411, point out that "there is a tendency (…) as though all investments generate durable utility. But an investment is a commitment of resources. (…) Indeed, it could create a lasting disadvantage."

[84] *Gregor* 2007, n.p., reports incidents in the New York housing markets where tenants frequently overstayed their rental period, thus hindering a successive tenant to move in. Although clearly a breach of contract, the predictable legal consequences were not sufficient to prevent this. *Goldberg* 2005 covers the complex relationship between private ordering and law, also touching the very issues mentioned in this chapter.

[85] Cf. *Joskow* 2005, p. 335.

[86] Cf. *Becker* 1997, p. 44.

[87] Cf. *Joskow* 2005, p. 321.

[88] Cf. *Milgrom and Roberts* 1992, p. 138.

[89] Cf. *Joskow* 2005, pp. 321-326.

[90] Cf. *Joskow* 2005, p. 320.

specificity of investments. Secondly, *uncertainties* and disturbances to which maladaptations can accrue. Thirdly, the *frequency* of the transactions.[91]

Specific investments have already been elaborated above and are considered as the most important dimension.[92] The most common forms of specificity are site specificity, physical asset specificity, human asset specificity, dedicated assets, and intangible or brand name assets.[93] Uncertainty and disturbances which trigger ex post adaptation can be outcomes of actors' behavior, organizational deficiencies, inadequate institutions or simply the state of nature.[94] In all cases significant costs can occur, although these vary by the type of adaptations which are required.[95] Frequency is the factor which is hardest to assess, and the only one of the three that is negatively related to transaction costs.[96] It is assumed that "[the] cost of specialized governance structures will be easier to recover for large transactions of a recurring kind."[97] The reason for this is that the fixed costs, which accrue to form a non-market governance system, can be spread out more widely.[98] Consequently, it matters mostly on the buyer side of the relationship.[99]

Rational actors, knowing about the problems as well as the critical parameters, economize on the total (transaction) costs of the relationship.[100] Since the public institutional setting frequently is not sufficient to successfully entertain complex relationships, private ordering through sensitive choice of contract law and governance structure becomes paramount.[101]

2.3.4.3 Facing the Problem: Private Ordering – Market, Hierarchy, or Hybrid

There is a large range of different options on how to organize an economic relationship, with spot-markets and hierarchies (as in a firm) presenting the polar points. In-between lays a continuum of different hybrid forms, including long term contracts, joint ventures or hold-

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[91] Cf. *Williamson* 2005b, p. 47. The following will mainly focus on specificity of investments, as those have repeatedly been pointed out as the most crucial of all issues; cf. *Ménard* 2005, p. 285.

[92] Cf. *Williamson* 1985, p. 52 and p. 56. It has to be noted that recent research substantiates this stream of theory in general, but contests priority of specificity over uncertainty; cf. *Geyskens, Steenkamp and Kumar* 2006, p. 519.

[93] See *Joskow* 2005, pp. 327-328, for more details on different types of asset specificity.

[94] Cf. *Williamson* 1985, p. 56-59.

[95] So are quantity adjustments easier to facilitate than changes in prices; for example problems may arise when prices are tagged to general economic conditions, but local circumstances differ significantly; cf. *Williamson* 1979, pp. 251-252.

[96] Cf. *Williamson* 1985, p. 285.

[97] *Williamson* 1985, p. 60.

[98] Cf. *Holmstrom and Roberts* 1998, p. 76.

[99] Cf. *Williamson* 1985, p. 72.

[100] Cf. *Joskow* 2005, p. 321. This, of course, is a simplification of the problem. For a final assessment both, production and transaction costs have to be considered, taking into account effects like economies of scale; cf. *Williamson* 1985, p. 61. The analytical framework to do this is too complex for a paper of this kind. Thus, only the transaction cost economizing aspect is looked at in the following.

[101] Cf. *Goldberg* 2005, pp. 491-492, and *Furubotn and Richter* 2005, pp. 175-178 and pp. 564-565.

ing companies.[102] Each of the three generic forms has its own characteristics with regard to the categories *incentive intensity*, *administrative controls*, *contract law regime* as summarized in Table 1.[103]

Governance Structures	Governance Attributes		
	Incentive Intensity	Administrative Control	Contract Law Regime
Spot Market	++	0	++
Hybrid	+	+	+
Hierarchy	0	++	0

Table 2: Governance Structures
Source: *Williamson* 2004, p. 926.

These features, as outlined in the following paragraphs, determine the transaction costs that each type accrues for transactions that differ with regard to specificity of investments, disturbances and frequency. Following the above elaborations that start with the prisoners' dilemma situation, it is obvious that a decision for supporting the relationship through contractual modes of governance can help both sides to realize gains. The question that remains is under what circumstances which mode of governance is the most efficient choice.[104] In his paper "Comparative Economic Organizations: The Analysis of Discrete Structural Alternatives" *Williamson* 1991 provides a framework for this, which has been more and more elaborated in the years thereafter. The following paragraphs briefly introduce the three generic modes of governance – market, hierarchy, and hybrid – illustrating their characteristics.

In this context, *market* is explicitly understood as a mode of organizing transactions.[105] A purist spot market is a place of anonymous exchange between interchangeable individuals.[106] Incentives are high-powered, especially since not only all chances, but also all the risks of an investment are completely with the actor. There is no supporting bureaucracy and the contractual framework is legalistic in a sense that no special measures that go beyond the public institutions and contract law regime are taken.[107]

[102] Cf. *Joskow* 2005, p. 320.
[103] Cf. *Williamson* 2005b, p. 48.
[104] Cf. *Williamson* 2005b, p. 48.
[105] This is in contrast to market as a set of arrangements which characterizes a market economy, cf. *Ménard* 2005, p. 302.
[106] Cf. *Joskow* 2005, p. 320.
[107] Cf. *Williamson* 2005b, pp. 48-51.

All this makes the market the most cost-efficient form of governance for transactions that comprise goods of no or very little specific investment. But whenever these are high, transaction costs rise fast and can easily offset the savings made by not having to pay for bureaucratic structures.

Some caveats apply, since no market is the same. Markets are shaped through the respective institutional environment and enforcement mechanisms, all of which not only can be changed to a certain degree by the actors themselves, but also result in different transaction costs.[108]

The other pole of the spectrum is a *hierarchy* as it exists in a completely integrated firm. Although a firm can be interpreted as nothing else but a nexus of contracts, there are some features that differentiate it from other forms of governance.[109] On the one side, incentives are very low-powered, as for example employees are fairly insulated by a fixed salary.[110] This is compensated by administrative support in form of a significant bureaucracy. Disagreements are solved within the company, *fiat* being the ultimate court of appeal. [111]

Since disputes are easier to solve, if one party has formal control over both sides of the transaction, which is given in a hierarchy (firm) rather than in a market relationship, a hierarchy works relatively best in circumstances that provoke hazards like hold-up situations. For example, triggered by high specific investments.[112] Nonetheless, individuals within an organization – no matter how hierarchical – remain driven by their self-interest.[113] This drives up the costs of bureaucracy, which also has to compensate for low-powered incentives. The costs for running a hierarchy are governance costs, representing a special type of transaction costs.[114] Summarizing, internal organization attenuates incentives to behave opportunistically, supports efficient auditing, and is a preferred option for dispute settlement.[115]

As already mentioned earlier, spot market and hierarchy are polar cases. There is a wide array of *hybrids* between these two extremes.[116] By definition this also means that the governance attributes are also somehow in the middle. There are some incentives, but not as extreme as in a pure market, and there is a bureaucracy working in the background. Most

[108] Cf. *Ménard* 2005, pp. 304-305.
[109] Cf. *Homann and Suchanek* 2005, p. 286 and p. 292.
[110] This takes into account the option of performance oriented components, which remain relatively low compared to market incentives.
[111] Cf. *Williamson* 2005b, pp. 48-51.
[112] Cf. *Holmstrom and Roberts* 1998, p. 76.
[113] Cf. *Homann and Suchanek* 2005, p. 295.
[114] For more information on the costs of bureaucracy see *Williamson* 1985, pp. 148-153.
[115] Cf. *Williamson* 1975, pp. 29-30.
[116] Cf. *Joskow* 2005, p. 320.

important is the role of the contracts that are applied. Contracts are used as a framework that allows for certain adaptations without extensive renegotiations.[117]

The results are again located between a pure market and a real hierarchy. This makes hybrid forms cost efficient for transactions that are on the one side too specific to be handled over a spot market, but on the other side are not that specific as that they would allow for the expensive bureaucracy of a hierarchical organization.[118]

Because hybrids are so diverse it is still hard to grasp what hybrids really look like. To shed more light into this, by no means trivial question, some of the many aspects *Ménard* 2005 references are illustrated at this point.[119] One of the main features is *relational contracting* between the actors. Such contracts are incomplete and provide a basic and homogenous framework for the relationship. This requires some kind of governance entity that can fill the open ended parts of the contract, monitors the partner and solves conflicts. The need for this (central) governance function, together with the need for coordination provides part of the reason why specific investments in human capital play such an important role. Careful selection of partners who benefit from specific investments as well as skills in assessing performance are paramount. The actual setup of such a governing entity can range from loose, trust based structures over slightly more dense networks to a designated internal leader who has to carefully balance decision power and symmetry of the relationship. The extreme would be an external quasi-autonomous body which shares attitudes of a hierarchy. The degree to which the hybrid is exposed to uncertainty and to the related necessity for adaptation play an important role in the final design. If these are high, or inputs, outputs or transformation processes are difficult to monitor, there is a stronger need for decisive governance than otherwise. To smooth the relationship and to take pressure from the contract itself annexes are frequently used, for example, to carve out quality issues and allow for easier adaptation. Multilateral agreements can support governance, as they allow for benchmarking. Peer review is another tool that has proven successful under these circumstances. All this highlights the delicate role of competition in such a context. Although the partners cooperate in certain respects, there still is room for competitive behavior in other areas. Furthermore, an overall very competitive market can present a reason for the emergence of hybrids to enhance the players' chances of survival by decreasing uncertainties and pooling resources as well as by serving as some kind of buffer.[120] However, the viability of

[117] Cf. *Williamson* 2005b, pp. 48-51.
[118] For a synopsis of all three types see *Williamson* 2004, p. 926.
[119] Cf. *Ménard* 2005, p. 294-302; *Ménard* 2004 provides an in-depth analysis of hybrid organizations.
[120] Cf. *Ménard* 2005, pp. 294-302.

a hybrid structure is assumed to be relatively low when frequent disturbances occur as adaptation decisions have to be made by both partners, rather than unilaterally like in a market or through fiat.[121]

This presentation hardly does justice to the diversity and potential of hybrids, but hopefully provides a sufficient basis for the following applications.

2.3.5 Concluding Assessment

Completing the elaboration on transaction cost theory in the preceding chapter Figure 4 brings the three different modes of governance in relation to each other, exemplifying for the parameter specificity.

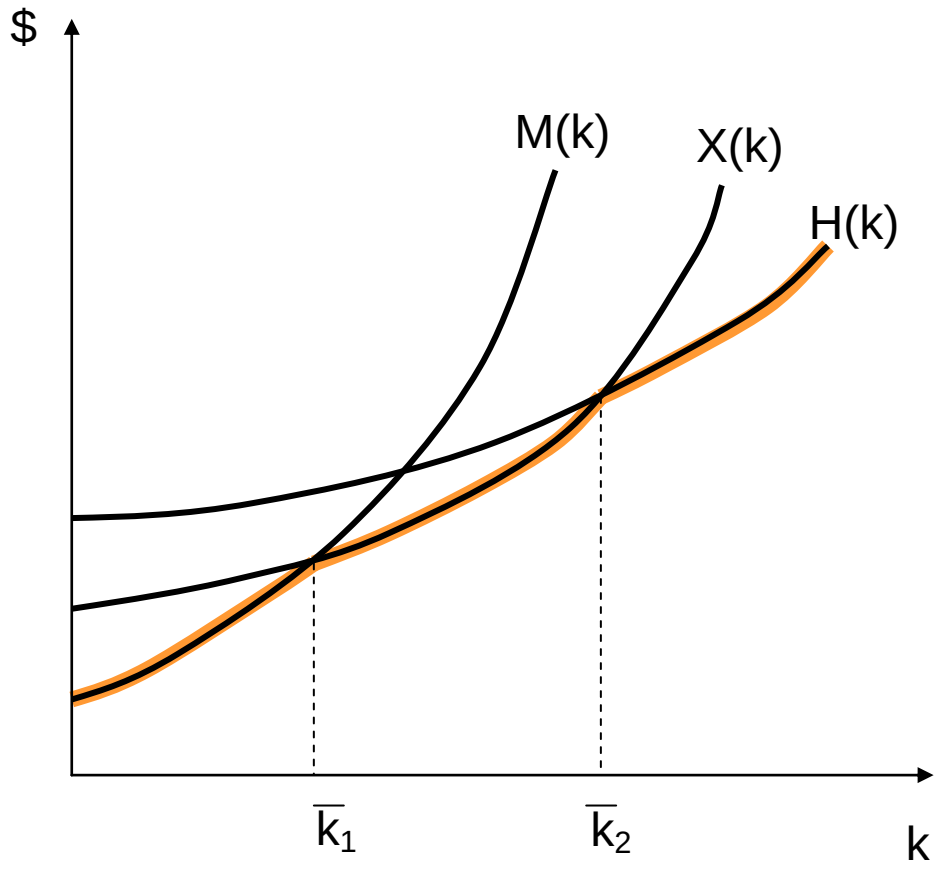

Figure 4: Transaction Costs and Asset Specifity
Source: Own illustration, based on *Williamson* 2005b, pp. 49.

For all forms of governance higher specificity *k* means higher transaction costs. However, a hierarchy *H* handles the increase better than a hybrid *X*, which in this respect still performs better than the market *M*. In technical terms this means that M(0) < X (0) < H (0) and M'(k) > X'(k) > H'(k). The bold line indicates the efficient contractual mode.[122] Obviously, the

[121] Cf. *Williamson* 1991, pp. 291-292.
[122] Cf. *Williamson* 2005b, pp. 49.

transitions points k_1 and k_2 are not as clear cut as might be suggested by the graph, which is a schematic presentation.

Contrasting principal-agent theory and transaction cost theory another difference can now be seen: Whereas the first, ex ante incentive oriented approach purely changes payoff rights, the second, ex post governance driven approach allocates decision rights.[123]

Although this paper combines principal-agent and transaction cost theory considerations, certain caveats remain. Probably most striking is the focus on costs. Any revenue consequences and production-cost effects are omitted in these models.[124] Other factors that can influence ownership patterns are difficulties in transferring knowledge or concerns for common assets, to name only two.[125] For the sake of consistency in the theory-based argumentation and taking into account the limited scope of this paper these limitations are hereby acknowledged but cannot be completely resolved.[126]

2.4 Brief Summary of Theory

This chapter set out to provide economic theory that could give insight into two different, but nonetheless closely related areas. After outlining required basics of New Institutional Economics this was approached by looking at two streams of contract theory. The first part – looking into the incentive structure of economic actors and its impact on their interaction – was covered by principal-agent theory. Transaction cost theory served for the second part, i.e. investigating different modes of structuring economic relationships.

Although these two theories, even if taken together, still omit some potentially relevant aspects of the analysis, the most crucial points are covered.[127] Thus, it seems reasonable to proceed to have a closer look at the health care sector, in which the key relationship of this investigation, the relationship between insurer and provider, is nested.

3 The Health Care Sector

3.1 Economics and Health Care

Health care and economics have a strained relationship that yet has to live up to its great potential. Since *Kenneth Arrow's* "Uncertainty and the Welfare Economics of Medical

[123] Cf. *Sappington* 1991, p. 46.

[124] Cf. *Williamson* 1991, p. 282. Economies of scope are one aspect which makes it seem likely that there are positive effects on production-costs and revenues. Cf. *Homann and Suchanek* 2005, p. 137. At this point it is noteworthy that organization theory is still a dynamic field of scientific research. Many aspects remain controversial and have yet to be answered. Cf. *Homann and Suchanek* 2005, p. 287. *Brickley, Smith and Zimmerman* 2007, pp. 129-155, cover production and production cost implications. For more information on limitations to transaction cost theory see *Milgrom and Roberts* 1992, pp. 33-35.

[125] Cf. *Holmstrom and Roberts* 1998, p. 75.

[126] See *Joskow* 2005, pp. 323-325, for traditional approaches to explaining vertical integration. Also see footnote 100.

[127] Cf. *Williamson* 1991, p. 276, and footnote 124.

Care" touched formerly foreign ground in 1963, much progress has been made.[128] However, a countless number of misunderstandings and misconceptions on both sides have caused irritation and probably prevented some achievable positive outcomes.[129] This chapter aims to deliver a succinct characterization of parts of the health care sector relevant to avoid some of these hurdles.[130] After outlining the normative framework of health care and illustrating some of the unique features of healthcare goods and services, the objectives and interests of the different actors as well as their relationships are elaborated on. Whenever referenced in this chapter, health systems are considered in abstract terms, not related to any specific incarnation like a social health insurance based system or a National Health Service approach.

3.2 Societal Norms

3.2.1 Basic Health Care for Everybody

Societal norms define certain goals of a health care system. For example, across most countries it is understood that medical care must not be denied if needed. This is reflected in the Hippocratic Oath and is adopted practice by many professional groups in the health sector. Sometimes this is referred to as a human right, sometimes more generally as a right for all people.[131] However, the practical implications of this are much more complex and lead to quite different results across the world.[132] Whereas the British government has accepted the duty to provide healthcare as a *perfect obligation*, and in Germany all citizens are legally enabled to obtain health insurance, the U.S. not only struggles to deliver this ethical mandate but also fails to agree on such a notion on a societal level.[133]

This paper adopts the view of international groups like the *Tavistock Group* defining health care as a right, but acknowledging that it has to be balanced against scarcity of resources,

[128] Cf. *Arrow* 1963, pp. 941-973.

[129] For a very well presented insight into these issues see *Reinhardt* 2001.

[130] As *Arrow* 1963, p. 948, writes: "(…) it is not claimed that the characteristics listed are individually unique to this market. But, taken together, they do establish a special place for medical care in economic analysis."

[131] Cf. *Smith, Hiatt and Berwick* 1999, p. 250, *Berwick, Davidoff et al.* 2001, p. 616, and *Mirvis and Bailey* 2001, p. 620.

[132] Cf. *Breyer, Zweifel and Kifmann* 2005, pp. 188-191. All these arguments are based on justice deliberations, e.g. with regard to the ability to pay or the role of (bad) luck in illness distribution.

[133] Cf. *Berwick, Davidoff et al.* 2001, pp. 616-617, with regard to Germany see *Bundesregierung* 2007, n.p. Several surveys found that Americans "believe [medical care] should be available to those who need it regardless of socioeconomic status or geography", *Mechanic* 2004, p. 81; this belief, however, has yet to be translated into real-world politics.

which makes a provision of *all* available services for *everybody* impossible. The logical result is to guarantee access to *basic* medical care for *all* people.[134]

To operationalize this abstract concept of basic medical care the three parameters *access*, *quality* and *costs* are looked at in more detail. Taken as proxies for societal norms these factors allow assessing the desirability of different forms of organizing the insurer-provider relationship; at a later stage of this paper the outcomes of various models are compared to these proxies.[135]

3.2.2 Access

A plethora of definitions are available for the term access. This may be a good indicator for the importance of the phrase or the frequency of its use, but is not very helpful. In the following section, access is therefore understood as a combination of availability, accessibility, and affordability.[136]

Availability contrasts the type and volume of services required by patients with what is being provided, especially with regard to facilities and human resources. The geographic dimension is added through *accessibility*, highlighting the fact that distance can present a significant barrier to care, e.g. through time restraints or costs of transportation.[137] Finally, *affordability* compares the financial resources of consumers with the costs of health care, i.e. prices charged by providers, co-payments and insurance premiums. Affordability is a subjective concept and threshold levels vary considerably in literature as well as in policy implementation. The appropriate share of health expenses of general income is obviously lower for people with extremely low incomes as other basic needs have to be covered too.[138] The patients' capability of identifying and obtaining affordable goods and services is also relevant for this aspect.[139]

3.2.3 Costs

Affordability on an individual level is closely related to costs. If costs are high, fewer individuals are able to afford health care without assistance. Given society's ethical mandate to

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[134] Cf. *Oberender, Zerth and Schmid* 2006, pp. 17-19. For how the definition of such basic access rights or basic coverage might be achieved and which ethical dilemmas have to be overcome, see *Kersting* 2000, pp. 25-50.

[135] These three parameters are often referred to as the iron triangle in healthcare as they frequently present trade-offs which are difficult to overcome; cf. *Federal Trade Commission; Department of Justice* 2004, p. 6. For an overview of alternative normative objective functions see *Hurley* 2000, p. 65.

[136] *Penchansky and Thomas* 1981, pp. 128-129, include accommodation and acceptability as a fourth and fifth dimension of access.

[137] Cf. *Penchansky and Thomas* 1981, pp. 128-129.

[138] Cf. *Dubay, Holahan and Cook* 2007, p. 24; in their paper they provide a more extensive attempt to define affordability in the context of health insurance and to attach concrete figures to the abstract concept.

[139] Cf. *Penchansky and Thomas* 1981, pp. 128-129.

ensure that everybody has access to basic health care, an increase in people who cannot afford health care results in a higher burden on others, who have to take on this responsibility.

There are several ways this social responsibility is handled. One option is through state subsidies which come from tax revenues. In a globalized economic world high taxes can present a competitive disadvantage, thus, again putting wages under pressure and jeopardizing individuals' chances to buy health services by themselves. In social health insurance schemes with contributions co-sponsored by employers, there is a similar effect.[140]

Either way, high costs in health care have mainly two closely related disadvantages: They increase the amount of subsidy required to assure health care also the poor and they threaten the ability of people who are currently financially independent to afford health care in the future.[141]

This cost-consciousness must not be confused with limiting any expansion of health related expenditure. In this regard the health industry is an industry as any other one: it creates jobs, contributes to overall wealth and fuels many related industries. Thus, the health sector can and must also be considered as a growing market that also offers additional benefits.[142]

Concluding this section it can be stated that besides guaranteeing access, society also has a strong interest in minimizing costs for a given level of quality.[143] This conclusion may appear strange at first glance. However, two things have to be taken into account: Firstly, applying economic efficiency considerations, either input or output must be held fixed while the other factor is optimized.[144] If the aim is to ensure access to basic health care for everybody, the latter applies. Secondly, just as access requires the availability of health services, quality encompasses access. The next chapter helps to explain this.

3.2.4 Quality

Quality links in with the term *basic* health care for everybody. What services are required to provide sufficient health care and what is the appropriate service level? This section focuses on the second aspect and more specifically on the third of *Donabedian's* quality dimensions, which are *structure*, *process* and *outcome*.[145] For the purpose of this paper quality is

[140] Cf. *SVR* 2004, pp. 19-20.
[141] Cf. *Altman, Tompkins et al.* 2003, p. 2.
[142] *Cutler and McClellan* 2001 make the case that the innovations which often triggered rising costs did offset the additional expenditure by the value they added. To ensure that these benefits materialize a regulatory framework has to be in place that discourages inefficiency and encourages innovation, which is one of the aspects that *Oberender, Hebborn and Zerth* 2006, pp. 163-205, point out.
[143] Cf. chapter 3.2.4.
[144] Cf. *Freiling and Reckenfelderbäumer* 2004, p. 7.
[145] Cf. *Donabedian* 1980, chapter three, pp. 79-128.

defined as outcome that is in the best interest of patients. This is intentionally vague and puts the focus on the goal of achieving quality rather than on the question of defining quality in detail.[146]

Bad quality of health care not only harms the individual, it also harms society as it leads to higher direct and indirect costs. This is illustrated by a recent, large scale study which suggests that in the U.S. each year about 9.3 billion USD in excess charges and 32,591 attributable deaths occur in the course of medical errors during hospitalization.[147] This, however, only accounts for costs coming from obvious medical mistakes and not for medical, psychological and financial harm caused in more subtle ways. For example, when better and cheaper treatment options or disease management programs are not offered due to skewed reimbursement incentives or lack of knowledge, this is lower quality care.[148]

Overall, it is fair to say that quality represents a key dimension that any health system has to be measured by. And the concern is even greater, as quality is as relevant to everybody as it is difficult to assess. The following chapter provides some insight into this issue.

3.3 Characteristics

3.3.1 Identifying Relevant Parameters

This outline of the general goals of a health care system, like access, costs, and quality, will serve as an external benchmark for the discussion of different arrangements. The next section will define the characteristics of the goods and services involved in meeting these goals by identifying relevant parameters of health services and characterizing them.

In most cases, when health care services are characterized, they are looked at from a market failure or welfare economic perspective. Relevant issues in this context are: increasing economies of scale, public good characteristics, external effects or market transparency and consumer sovereignty problems.[149] However, looking at economic theory as developed in chapter 2.3, some factors play a more important role than others. These are in particular *measurability* and *risk* with regard to principal-agent theory and *specificity* of investments,

[146] The number of definitions available for quality is immense. E.g., the *Institute of Medicine* 2001, p. 232, defines quality as "the degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge"; another definition by the Agency for Healthcare Research and Quality demands doing the right thing at the right time in the right way to achieve the best possible results; cf. *AHRQ* 2005, p. 3.

[147] Cf. *Zhan and Miller* 2003, p. 1872. Also see *McGlynn, Asch et al.* 2003 and *McGlynn and Brook* 2001 on the same topic. The *Institute of Medicine* 1999 report "To Err Is Human" is considered as groundbreaking with regard to identifying these problems. However, surprisingly little has changed since then as *Millenson* 2003, pp. 103-112, illustrates.

[148] Cf. *Urbina* 2006, n.p.

[149] Cf. *Breyer, Zweifel and Kifmann* 2005, p. 173-175.

disturbances and *frequency* of interactions with regard to transaction cost theory.[150] Whereas measurability and risk are mainly (but not exclusively) related to health care services and goods, the latter three are nested in the relationship between different players. This distinction is reflected in the focus of the following two chapters.

3.3.2 Health Care Services

3.3.2.1 Measurability and Information Asymmetry

Looking at health care services measurability is a central issue. The title of this section pairs it up with information asymmetry. This is reasonable as the need for evaluation – hence measurement – increases with the degree to which information is unequally distributed. Obviously, different types of services have different degrees of measurability. For example, it is relatively easy to determine the number of laboratory tests performed in a facility, but it is much more complicated to assess the quality of treatment over a full period of illness. Regulatory measures like licensing can reduce some of the uncertainty but cannot eliminate it.[151]

An additional layer of complexity is added from the consumers' viewpoint as there is no possibility to sample and test the quality in advance, as the services are frequently required on an ad hoc basis. In case of diagnostic services the requested good is information. It is ex ante impossible to evaluate information as this would require that the information is already available before being diagnosed. When services finally are delivered, the *uno-actu* principle applies, which means that production and consumption occur at the same time, which again disallows for comparing different options.[152] Thus, to sum it up, healthcare is an experience good.[153] Even ex post it remains exceptionally difficult to assess the quality of services as many confounding variables and factors influence the final result and make it difficult to account for causality between treatment and result; two such factors are for example patient compliance or biological processes. Thus, quality of services is hardly verifiable ex ante as well as ex post.[154] Although most literature in this context refers to consumers, these characteristics also challenge insurers.

One way to eliminate some of these measurability and information issues is to look at input factors like the extent a provider keeps up with cutting edge developments in her field, for

[150] Cf. chapter 2.3.2.1 and chapter 2.3.4.1 respectively.
[151] Cf. *Preker, Harding and Travis* 2000, p. 783 and p. 787.
[152] Cf. *Arrow* 1963, pp. 948-949. *Breyer, Zweifel and Kifmann* 2005, pp. 181-182, provides a good synopsis of these issues.
[153] Cf. *Richard* 1996, p. 201.
[154] Cf. *Schneider and Ulrich* 2005, pp. 2-3, *Schneider* 2005, p. 4, and *Breyer, Zweifel and Kifmann* 2005, p. 182.

example by attending courses and obtaining certifications.[155] However, it remains very difficult to validate the everyday efforts a provider puts into increasing her knowledge and providing quality care to her patients. Consequently, failing quality can hardly be proven through external authorities like a court, which makes it very difficult to integrate quality as a parameter into a reimbursement contract.[156]

So it is difficult to detect substandard quality. Furthermore, if services are delivered under standard market procedures, which means that a service is rendered for a fee, supplier-induced demand can be observed. In such a case output as well as prices are likely to rise. If not controlled, the result could be poor quality and expensive services.[157]

This illustrates that measurability of health care services is relatively low, whereas information asymmetry remains high. Both, however, are crucial factors in determining the structure of the insurer-provider relationship as they directly impact on societal goals like quality as defined in chapter 3.2.

3.3.2.2 Risks Related to Health and Health Care Services

Besides the health risk that goes along with low quality of care or informational bias there are characteristics of health and health care services in general that pose an array of different risks, most importantly financial ones. Not only consumers, but also providers and insurers have to face those.

Health hazards are generally difficult to predict on an individual level. Certain, for example genetic, preexisting conditions may raise the probability of some diseases. However, on a large scale the likelihood for a particular individual to suffer from one or another disease is almost impossible to determine. Reliable predictions can usually only be made on a higher level that groups together a larger number of people. This directly impacts the demand structure for health care services. There are some needs like preventive care, regular check-ups or even dental prosthesis that are required within time periods and at costs that can be predicted with a relatively high certainty. However, to a large degree demand is determined through episodes of acute illness. Consequently, demand is similar to a probability function. Consistent with these health care specific issues, as a general rule, risk is the easier to manage the better it can be spread out, be it over a number of individuals or of incidents. Thus, patients transfer their risk to insurance companies.[158]

[155] Cf. *Institute of Medicine* 2001, p. 211.
[156] Cf. *Breyer, Zweifel and Kifmann* 2005, p. 397.
[157] Cf. *Evans* 1973, pp. 163-166.
[158] Cf. *Cutler and Zeckhauser* 2000, pp. 571-772.

Unpredictable episodes of illness do not only cause loss in quality of life or death. Risk also emerges from the significant financial consequences that are triggered by adverse health incidents. Besides the uncertain costs of treatment, which depending on the reimbursement system can impact providers as well as patients, also forgone income has to be considered on the patients' side. As the monetary loss can be substantial it is close to impossible for individuals to accrue adequate savings to insulate against potential monetary shocks.[159]

Summarizing the risk characteristics, it can be stated that health related adverse events are not only threatening consumers medically, psychologically and financially, but they also can negatively impact providers, if reimbursement is inadequate. All this is closely related to the individual's capability to spread risk and to account for potential future events.

3.3.3 Stakeholders in the Health Care sector

3.3.3.1 Setting the Scene

Before looking at the next set of characteristics it is necessary to look at the different stakeholders in the health care sector. Only after having identified their specific interests and relationships, the above developed theory can be applied properly. Thus, the aim of this chapter is to set the scene for illustrating the relationships between the actors in a health care system by identifying them, defining their objective function and finally looking at their risk attitudes. For the purpose of the analysis a free market and a competitive environment is assumed, in which actors' behavior is mainly driven by factors as outlined in chapter 2.2.2.2.

The classic key players in a health care system are consumers, providers, third-party payers, and the regulator, which is the state. Although an indefinite list of other stakeholders supplements them, these four perform the core functions.[160] This means: The consumer demands health care services in case of acute need or preventive and elective measures. Since the financial risk that goes along with illness is significant, some kind of risk pool is interposed. Besides spreading the risk this pool has two functions: First, collecting money from the consumer and second ensuring provider payment, be it through direct reimbursement or patient indemnity plans. The provider delivers health care services and receives money from the risk pool and/or the consumer. The state, in this scenario is limited to perform regulatory duties, aiming at the goals outlined in chapter 3.2. Regulatory duties also include ensuring a free, competitive market, e.g. through applying antitrust legislation.

[159] *Robinson* 1998, esp. pp. 54-55, gives insight into the fragile financial situation of providers.

[160] Cf. *Cutler and Zeckhauser* 2000, p. 566, and *Mossialos and Dixon* 2002, p. 2. Other stakeholders like supplementary services in laboratories, pharmacies and branches like the pharmaceutical industry are beyond the scope of this paper and therefore omitted.

Since the scope of this paper is to shed light on the relationship between insurer and provider, at this stage one bold assumption is made to take consumers and state out of the equation. This assumption is that the insurer as well as the state are henceforth perfect agents of consumers.[161] This reduces the problem to the relationship between insurer and provider, whose objective functions are elaborated on in the next chapter.

3.3.3.2 Objective Functions

Having already raised the issue of actors' goals, these can be made explicit in a more formal way.[162] The provider's objective function aims to maximize her utility U_p. Expected income P increases utility whereas direct costs C and indirect costs V diminish it.[163] A quality of care component q is introduced and the effort e of the provider is taken into account. Thus, in a formal way, the provider's objective function can be stated as

$$U_P = E(P) - C(q, e) - V(q, e). \quad (5)$$

C is positively correlated to q and negatively to e, which means that the provision of a higher level of quality increases costs, but that through extra efforts the provider can contribute to cost savings too. The converse is true for indirect costs V. While the efforts e diminish the providers utility, for example through the time she has to put into these measures, a higher level of quality improves utility example.

The insurer's utility function is positively influenced by the quality level q, but utility is reduced through the payment of income to the provider. This results in the insurer's objective function

$$U_i = B(q) - E(P). \quad (6)$$

As equation (5) and (6) illustrate even such a basic form of modeling players' objective functions can highlight some potential conflicts of interest. Possible sources are, for example, differing impact of q on their utility or the fact that efforts e are not reflected in the insurer's objective function.

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[161] The assumption of a benevolent state is problematic but necessary. *Weingast* 2005, pp. 149-151, gives insight which implications such an approach can have. Insurers are assumed to be controlled through competition and according regulation; cf. *Breyer, Zweifel and Kifmann* 2005, p. 439.

[162] The following is based on *Breyer, Zweifel and Kifmann* 2005, pp. 397-404, and *Chalkley and Malcomson* 2000, pp. 853-862. Consumers face a trade-off between using their resources for health related purposes and other goods. Consequently, they try to identify an optimal, thus utility maximizing, combination of the two. Length and quality of life on the one side and availability of resources for other purposes on the other side positively influence utility. The health system has a positive effect on quality and length of life through quality of care provided. Available resources are reduced through the consumer's payments into the risk pool and her direct payments to the provider; cf. *Breyer, Zweifel and Kifmann* 2005, p. 74. In the given scenario the insurer has to solve this trade-off on the patient's behalf.

[163] Presenting income as a expectation value of P pays tribute to the fact that depending on the precise payment mechanism in place the final income may not be known for sure ex ante and in this way embraces the random variable θ.

3.3.3.3 Risk Attitudes

According to the preceding chapter, due to the characteristics of health threats, *individual* consumers are highly vulnerable to risks. They have no capability of predicting or spreading risk very well and have only limited financial resources available. Although this commonly leads to a pooling of risks trough some kind of insurance, the setup of which can take various forms, individuals themselves have to be considered as *risk averse*.[164]

For the provider it is slightly easier to balance financial risk, which she might encounter through an insufficiently reimbursed treatment for a single patient as usually a large number of patients is seen. Even more so, the risk is minimal as long as all services provided are completely covered through patient or insurer payments. Depending on the reimbursement mechanism, however, there could be risks for the provider, either if certain types or therapies are systematically under-funded and/or the provider serves a very specific high need/low reimbursement population. In the latter case a geographic lock-in effect is likely to make it difficult at least for smaller providers to pool the amount of risk presented by this population with more profitable patients.[165] Financial risks for providers are also attributed to investments in expensive equipment, an aspect which will be covered more in-depth in chapter 3.3.4.2. It is noteworthy that a small independent physician's office is obviously much more limited in pursuing different ways to face these challenges than a large hospital system. The implications from this will be considered in the course of this paper and also lead to the conclusion that, whereas small providers are quite likely to be *risk averse*, larger providers' attitude towards risk can be characterized more as *risk neutral*.[166]

With regard to the size of the risk pool insurance companies have the highest capability of dividing up the burden between a large number of consumers as well as providers. Considering this, insurers are *risk neutral*.[167]

After having identified and characterized key stakeholders in the health sector in this chapter, the following section investigates the relationships between the different actors based on the parameters developed so far.

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[164] Cf. *Cutler and Zeckhauser* 2000, p. 572.

[165] *Scott* 2000, pp. 1190-1191, describes individual practices as risk averse and their attempt to spread risk through partnerships and group models.

[166] Cf. *Robinson* 1998, pp. 54-55.

[167] Cf. *Cutler and Zeckhauser* 2000, p. 631. Another source of (financial) risk is moral hazard, which again is more closely related to consumer and provider behavior rather than specific characteristics of health care services. However, these issues are beyond the scope of this paper. For more in formation on adverse selection and moral hazard see *Cutler and Zeckhauser* 2000, pp. 576-580 and p. 631.

3.3.4 Characteristics of Contractual Relationships

3.3.4.1 Setting the Scene

To characterize the relationship between insurer and provider, some basic aspects have to be considered. First of all, services rather than goods are purchased. This directly impacts the legal codes that apply, if somebody is sued for breach of contract, thus highlighting the important role of the institutional framework.[168] Any health care market is subject to an overwhelming amount of regulation, which goes well beyond what is required for "regular" businesses.[169] Certain types of contracts are completely disallowed, for example those that would put patients at risk.[170] These and other parameters of the institutional environment have to be considered, if potential contractual regimes are evaluated.

A second point worth mentioning is the bilateral nature of the relationship. Although prima facie the insurer is a typical purchaser of services produced by a provider, the value chain to be considered is more complex. By entering into a contract with an insurer the provider potentially receives benefits like access to markets, reputation effects and knowledge transfers.[171]

Taking the analysis to the next level the following sections look at specificity, uncertainty and frequency, the parameters identified above to be essential defining the mode of organizing the insurer-provider relationship.

3.3.4.2 Specificity

To be able to assess the specificity of investments conducted it is important to have a clear understanding of the type of investment made. It is also important to restrict considerations only to investments which are linked to the specific contractual relationship. If, for example, this means a provider invests in highly expensive, narrow use equipment without any connection at all to the relationship with an insurer (e.g. cosmetic surgery equipment) this may well produce sunk costs. These, however, are irrelevant for this analysis.

Next the investments in sites, physical assets, human assets, dedicated assets and intangible or brand name assets will be considered.

Locations and geography play an important role for providers as well as for insurers, but does this translate into *site specificity*? Providers need facilities to perform their services

[168] Cf. *Williamson* 1979, pp. 233-235.
[169] See *Preker, Harding and Travis* 2000, pp. 784-787, for transaction cost oriented public regulation.
[170] Cf. *Morales Burke* 2003, pp. 37-38.
[171] For an insightful discussion of the status quo and how structures should or could be reformed see *Porter and Olmsted Teisberg* 2006, especially chapters five and six.

close to where patients are.[172] Although not any real estate is suitable to house provider services, especially when organizations like hospitals are considered, there still remains the option to rent or to sell property for alternative use.[173] For most insurers geography is important, as they have to be close to consumers, but there is no need for having sites in a specific geographic relation to providers. However, it is important for insurers to have access to providers, because if an insurer wants to cover consumers in certain areas but cannot offer access to services there, the insurance product is difficult to sell. Consequently, it seems likely that insurers want to contract providers in certain areas. Nonetheless, it remains unlikely that this triggers site specific investments by any side. More importantly, although the investment may be site specific, it is not necessarily relation specific, as a provider can use the same facility to enter a relationship with another insurer, be it afterwards or even simultaneously.

Physical assets are numerous and especially in medical care many of them are very specific (e.g., diagnostic equipment), but again their use is not limited to a specific insurer-provider relationship. This is even truer for the insurer side, which is not using any customized production equipment at all. One potential trigger for relation-specific investments in physical assets could be the communication interface between insurer and provider, for example, if specific hard- or software[174] has to be purchased to transmit claims or similar data, which is not used by other players. A similar effect could be observed, when only few insurers require certain quality-related standards that are linked to physical assets. However, the value of the second use of equipment and tools is generally fairly high as it can be used outside of the specific relationship too.[175]

Human assets seems to be a more likely candidate for specific investments as far as the insurer-provider relationship is concerned. On the provider side, training is required to enable utilization review, accreditation, network contracting and financial risk management. For example portfolio building of capitated and non-capitated services is directly dependent on

[172] *Billi, Pai and Spahlinger* 2007, p. 28, not only conclude that utilization of health care and burden of disease increase with larger distance between primary care provider and patient, but also that, depending on the reimbursement mechanism, this presents significant financial risk for the provider. With regard to hospitals *Buchmueller, Jacobson and Wold* 2006, pp. 758-759, suggest evidence that with increasing distance to the next hospital demand is shifted towards office based physicians and outcomes deteriorate for emergent conditions.

[173] For basic information on building costs and rent see *Miller and Miller* 1994, pp. 456-457. With regard to options for selling physician practices see *Grenell* 1998, p. 17.

[174] Software is often interpreted as knowledge, rather than a physical asset; in this context however, the latter one seems to be appropriate.

[175] *Hackbarth and Milgate* 2005, p. 1147, gives an overview on reasons why especially physicians are reluctant to invest in information technology in general. Significant costs are one of the reasons mentioned. Also see *Robinson* 1998, pp. 55-58.

the quality of contracts negotiated with insurers.[176] On the insurer side, this set of problems is mirrored. One question for insurers in this context could be how much experience gained by a specific employee with regard to a specific provider helps in a way that cannot be reproduced by data alone. To a certain extent personal relations also make it easier to facilitate such a relationship, especially when negotiations and bargaining plays an important role. This seems to be more likely when large providers are involved, for which more customized contracts are elaborated.

A provider is much more likely to be seen by a patient when the consumer's insurance covers the doctor visit. This means that having or not having a contractual relationship with a (not too small) insurance company can significantly affect the number of patients seeking treatment at this particular institution. Once such a contract is terminated, it is quite likely that the provider will have excess capacity from *dedicated assets*. Of course some of this capacity could be reduced quickly, but some of it is likely fixed. (Medical) services obviously cannot be "stored", which means that capacities are either used immediately or are essentially worthless.[177] Thus, dedicated assets are particularly sensitive to volume and market share by which individual companies have the power to significantly manipulate demand.[178] Premature contract termination of a large provider might also affect the insurance companies' ability to provide specific services in a certain area, this however is not related to dedicated assets.

As a last type of assets *intangible* or *brand name assets* have to be considered. If providers and insurers work in a competitive environment, marketing and branding play an increasingly important role. Depending on the regulatory environment this varies from market to market and is not necessarily determined by characteristics of these services. In certain markets a high use of these measures can be observed.[179] This can be critical if an insurance company advertises with a provider's services as both can take harm, for example, if the other side receives negative media coverage due to medical negligence or insufficient coverage. On the other hand, under a franchise system, which allows use of a certain brand name, all investments of the provider in reputation of this brand name are lost, if the license is withdrawn.[180]

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[176] Cf. *Robinson* 1998, p. 55.

[177] Cf. *Arrow* 1963, pp. 948-949. *Breyer, Zweifel and Kifmann* 2005, pp. 181-182, provide a good synopsis of these issues.

[178] Cf. *Robinson* 1998, p. 56.

[179] *Loubeau and Jantzen* 1998, p. 229, provide insight into hospital marketing and find that prevalence is greatest when financial interdependency with other providers exist. *Neuman, Maibach et al.* 1998, pp. 132-139, investigate HMO advertising strategies. However, little is available on branding.

[180] Cf. *Joskow* 2005, p. 328.

Although it is difficult to quantify the specificity of investments in the insurer-provider relationship, it seems to be a moderate threat. However, there are some relation-specific investments, for example through specific hardware or software requirements, experienced human resources for provider specific monitoring and negotiating, or brand name related activities.

3.3.4.3 Uncertainty

The next parameter to be considered is uncertainty which might lead to disturbances of the insurer-provider relationship, requiring adaptation, monitoring or renegotiation. Roughly, potential disturbances can be differentiated in external and internal factors.[181] After looking at these two aspects, the kind of adaptations that are required by different kinds of disturbances are briefly covered.

Starting with the *external factors*, some examples, but by no means a conclusive list, are given. As the business under investigation is related to health, changes in the demand for health services triggered by illnesses or diseases are a likely factor to require adjustments in the relationship; for example, if a certain volume of a specific service has been contracted and the actual demand, e.g. through an epidemic, exceeds this, renegotiations are required. The same could happen, if demand is surprisingly low. In the long term changes in demography of clients or population also play a role. However, as these are long-term developments, it should be possible to account for them in the contract more easily than for more sporadic changes.[182]

Other factors that can be changes in the regulatory environment include those related to quality requirements like minimum case numbers, reimbursement restrictions or changes in the mandatory benefit catalog.[183] Depending on contract period and legislature unpredictability, these factors could be cause for renegotiations.

As health care is a field of permanent innovation, be it through pharmaceuticals or otherwise, new treatment options frequently have to be considered with regard to their status in the insurers' formulary or benefit catalog.[184] Conflicts can arise, if providers think that a certain innovation is necessary and beneficial, but insurers think otherwise. It is also possible that a procedure was covered and providers therefore had invested in expensive equipment, when a cost-effective alternative was developed and insurers mandated the use of the

[181] Cf. *Ménard* 2005, pp. 298-299.
[182] For a synopsis on the topic of demographics and epidemiology see *Weinstein, Hermalin and Stoto* 2001, pp. 1-5, or *Seeman and Crimmins* 2001, pp. 88-117.
[183] *Mortenson* 1994, pp. 2204-2207, illustrate uncertainty introduced by chaotic policy making and its impact on provider, insurers and patients by looking at cancer treatment.
[184] Also see footnote 186.

new option before the other equipment had paid off. Thus, innovation can cause uncertainty, especially in fields where it is more common than in others.

After external factors a number of *internal uncertainties* and *disturbances* must be investigated. Internal uncertainties mainly emerge with regard to inputs and outputs as well as the transformation processes themselves and are directly linked to actors' behavior. Moral hazard, as one peculiarity, has already been briefly mentioned. As outlined above the assessment of quality of care – which embraces all aspects from input over transformation to output and outcome – is difficult and costly, especially if proxies are regarded as second choice and "true outcomes" are requested. This leaves a lot of potential for opportunistic behavior, for example in form of supplier induced demand.[185]

Not only can providers trigger disturbances of the contractual relationship, but a common concern is delayed reimbursement of providers by insurers, or too restrictive handling of the benefit catalog, hindering providers to deliver the care they feel to be adequate.[186]

So, what can be concluded? Back in 1963 *Arrow* states that uncertainty is a dominant feature in the health care market.[187] Although new insights have alleviated this problem to a certain extent and the focus of this study is more on the intermediary product market, rather than the end-consumer market, uncertainty definitely remains an important characteristic of the insurer-provider relationship.

3.3.4.4 Frequency

According to literature, the parameter *frequency* is the most difficult one to assess with regard to its impact. As frequency is focused purely on the buyer side, it seems to be primarily relevant from the insurers' viewpoint. Insurers typically have relations with a large number of providers, and therefore should be able to spread the costs of running a governance body quite easily. Again there may be some differences between the frequency of transactions with small providers compared to the number of big hospitals they cooperate with. The task, however, is pretty similar so that these economies of scale are likely to be levied. For an individual provider this is probably much more difficult because the number of insurance companies they cooperate with (on a significant volume) is likely to be fairly low. Thus,

[185] Cf. *Evans* 1973, pp. 163-166.

[186] *Finkelstein, Silvers et al.* 1998, p. 663, conclude that "[t]he deep discord between physician recommendations and insurance coverage decisions (…) represents a major challenge to mechanisms of health care decision making, access, and costs."

[187] Cf. *Arrow* 1963, p. 946.

from the provider side, it might be worth considering joining forces to balance this otherwise quite asymmetric partnership.[188]

This concludes the discussion of the specific characteristics of the insurer-provider relationship.

3.4 Brief Summary of Health Care Sector

A clear understanding of the unique characteristics of the health care market is vital to ensure an appropriate application of economic theory. After setting out the normative framework which was based on the principle of "basic healthcare for everybody" and centered around the key areas of access, costs and quality, the key parameters of the preceding theory chapter were again summarized. Then the main part of this chapter was spent discussing these parameters, grouped into those applicable to health services and goods in general, those applicable to individual stakeholders and finally those associated with the contractual relationship between insurers and providers, and elaborating their specific characteristics in the health care market.

4 Applying Theory to the Insurer-Provider Relationship

4.1 Applicability of NIE to the Health Care Sector

Now, as the next logic step, this chapter merges the theory-based concepts as outlined in chapter 2 with the specifications of the health care sector as presented in chapter 3 to make predictive statements about insurer and provider behavior, especially with regard to ensuring incentive compatibility and identifying an efficient mode of contractual organization.

Before starting of with this, some brief thoughts on the applicability of New Institutional Economics to the health care sector are presented. The sheer number of publications investigating principal-agent relationships within the health sector seems to indicate that this indeed is a sound approach to cover at least this specific aspect.[189] This is supported by the almost ideal match of key factors in new institutional economic theory and health care politics, including information asymmetry and the informed patient or consumer, to name only two. The same is true for the insurer-provider relationship, as the insurer as purchaser of services gives entrepreneurial freedom to the provider to deliver these services on the insurer's behalf. This is consistent with common definitions of principal-agent relationships.[190]

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[188] Cf. *Robinson* 1998, p. 57, for the need for consolidation of small provider entities into larger groups, and p. 67, for transaction cost considerations with regard to contracting. In many health insurance markets insurer monopsonies are prevalent; cf. *Boylston Herndon* 2002, pp. 197-198.

[189] Between the players multilateral and multilevel principal-agent relationships emerge. As examples illustrating this see *Behrens, Güth et al.* 2006 and *Schneider and Ulrich* 2005.

[190] For example see *Cutler and Zeckhauser* 2000, pp. 588-589.

Compared to this, the transaction cost component seems to be a more unlikely match. Most literature applies this heuristic in the context of manufacturing industries and refers to classic make-or-buy decisions and pure vertical integration.[191] However, as *Williamson* puts it, "vertical integration turns out to be a paradigm".[192] It can and has to be applied to contracting more generally and helps to investigate relationships between all stakeholders in a business environment, all of which are variations of a basic contractual schema. Thus, although the most common reference is to vertical integration, all kind of contractual relationships, be they backward, lateral or in any other dimension, can be adequately analyzed through tools provided by New Institutional Economics.[193] Furthermore, the focus on identifying and making explicit strategic hazards that emerge in small number exchange relationships (for example in concentrated markets) proves very useful as the course of this paper will show.[194] *Gick* 1999 provides an interesting example that transaction cost economics can be applied to the service sector to analyze questions of vertical integration.

Before moving on, one word on transactions, as they play such a central role in this paper. It should be understood that a transaction in the insurer-provider relationship is not necessarily restricted to cover only one patient treatment episode. This is one option, however, not the only one. A transaction can also embrace a definite or even indefinite number of treatment episodes. The extent to which these are bundled or limited is a discretionary aspect of the contractual relationship between the two sides.

4.2 The Principal-Agent Aspect

4.2.1 Tackling Measurability Issues through Incentive Compatible Pay

This chapter makes use of principal-agent theory, as outlined in chapter 2.3.2. The goal of this undertaking is to identify an efficient configuration of the provider-insurer relationship that allows compatible ex ante incentives with regard to the two key aspects identified above: measurement and information asymmetry problems as well as players' risk attitudes. Considering the high measurement costs and significant information asymmetries that result from the characteristics of health and health care services, moral hazard phenomena are

[191] Furthermore, in most cases in which vertical integration in the health sector is covered in recent U.S. literature, the focus is on health systems and hospital-physician relationships. Cf. for example *Robinson and Casalino* 1996 or *Conrad and Dowling* 1990.
[192] *Williamson* 2005b, p. 52.
[193] Cf. *Williamson* 2005b, pp. 52-54. Besides idiosyncratic goods, *services* are explicitly mentioned, too, for an example see *Williamson* 1979, pp. 255-257.
[194] Cf. *Williamson* 2005b, p. 43.

very likely.[195] This makes ex ante alignment of incentives favorable from an efficiency viewpoint.

The most common approach is to work on players' payoffs through the reimbursement system. To do this *Breyer, Zweifel and Kifmann* 2005 present an approach which will be used in the following.[196] They assume that neither effort nor quality is completely observable in this model, which means that these aspects cannot explicitly be included in a contract which could be enforced by a court.[197]

In the original stylized model without a trade-off between quality and cost in chapter 2.3.2.3, the efficient reimbursement mechanism was to leave all financial risk with the agent. But the issue of risk premiums indicates the potential need for amendments to achieve an efficient solution. To see how this plays out for a provider, who is assumed to have an interest in providing *quality* care and has an objective function as presented in chapter 3.3.3.2, the problem is now modeled with a twofold payment method. Only an abridged derivation is given at this point.[198]

Building on the provider's objective function, the *provider's* payment function additionally includes the variables *G*, which represents a basic residual component, and γ, which is the share of costs *C* paid for by the insurer.

$$U_p = G - (1 - \gamma)C(q, e) - V(q, e). \quad (7)$$

The provider maximizes her utility by applying first order conditions, thereby balancing marginal benefits and costs. The cost-sharing component γ is an exogenous factor in this equation. Thus, the reservation utility $\bar{u}$ of the provider presents a constraint which leads to the condition

$$G - (1 - \gamma)\, C(q^*(\gamma), e^*(\gamma)) - V(q^*(\gamma), e^*(\gamma)) \geq \bar{u}. \quad (8)$$

The corresponding utility function for the *insurer* is

$$U_i = B(q(\gamma)) - \gamma C(q^*(\gamma), e^*(\gamma)) - G, \quad (9)$$

in which *B* represents the insurer's benefits from the quality level *q* provided. Solving (8) for *G* and inserting it into (9) the derivation by γ – after further transformation assuming utility maximizing behavior by the provider – results in

$$dU_i/d\gamma = dB/dq^*dq/d\gamma - \gamma^*dC/dq^*dq/d\gamma - \gamma^*dC/de^*de/d\gamma. \quad (10)$$

[195] This is based on the characteristics of health and health care services in chapter 3.3.2.

[196] Cf. *Breyer, Zweifel and Kifmann* 2005, pp. 397-404, which is similar to the model used by *Chalkley and Malcomson* 2000.

[197] Cf. *Chalkley and Malcomson* 2000, p. 853. "It has to be expected that in practice neither level of quality nor success of treatment can be sufficiently assessed. Thus, it is unlikely that contracts which refer to these measures will prevail." *Breyer, Zweifel and Kifmann* 2005, p. 400, own translation.

[198] See *Breyer, Zweifel and Kifmann* 2005, p. 402, for a full specification of the model and all calculation steps.

If equaling zero, equation (10) maximizes insurer utility. However, given the plausible hypothesis that $dq/d\gamma > 0$ and $de/d\gamma < 0$, equation (10) produces a positive value for $\gamma = 0$. This means that outcomes are not optimal, if the provider has exclusive responsibility for costs, as this results in excessive quality losses.

This is understandable, as the positive effects a provider enjoys for the reduction of costs *C* through her residual income *G* are partly set off by the costs *V* she accrues through the efforts *e* she has to put in to achieve this. However, these efforts are not reflected in the insurer's objective function, which thus benefits disproportionately by an increase of quality. To achieve the overall efficient result by capturing at least some of these positive externalities, a part of the provider's costs has to be shared by the insurer. Consequently, the insurer benefits from a cost sharing arrangement $\gamma > 0$, which nonetheless presents only a second best solution as a cost-quality trade-off has to be balanced ($de/d\gamma < 0$!).[199]

4.2.2 Risk Attitudes, Differentiations and Caveats

These conclusions are true for any type of provider with the objective function outlined above. However, looking now at the second criterion, the providers' risk attitudes, and maintaining the assumption that efforts are not observable, small and large providers have to be treated differently.

As the first ones have a much smaller capability of handling risk than the second ones and are therefore risk averse, they demand a much higher risk premium. This premium presents a trade-off similar to the one described above; a higher risk premium or higher cost sharing diminishes incentives to work cost-effectively and consequently reduce efficiency. Although this is only a second best solution, it is optimal for the insurer to lower the risk premium by bearing a certain share of costs.[200]

For larger providers like unified physician groups, hospitals or even big hospital systems, this presents a smaller problem. As risk premiums are low, financial risk can be with the provider to a larger degree. In such a case a prospective payment system, which leaves all financial risk with the provider, yields the best outcomes and presents a first best solution.[201]

The aim of this chapter was to identify a configuration of the insurer-provider relationship that achieves incentive compatibility in an efficient manner, taking into account measurabil-

[199] Cf. *Breyer, Zweifel and Kifmann* 2005, p. 403.
[200] Cf. *Breyer, Zweifel and Kifmann* 2005, p. 393.
[201] Cf. *Breyer, Zweifel and Kifmann* 2005, p. 387. *Selder* 2005, pp. 907-930, elaborates a reimbursement model taking into account patients' ex post moral hazard. A review of current literature on this topic is included.

ity and information asymmetry issues. As the strict conditions for the basic example in chapter 2.3.2.3 are not met in the health sector, a complete transfer of financial risk to the provider is not optimal. Depending on the extent to which these conditions are absent, an increasing share of provider's costs has to be reimbursed by the insurer. With regard to incentive compatibility this results in a second best solution, as certain trade-offs remain unsolved.

Some relevant issues that have not been covered might require further consideration, including how the actual costs should be determined and which measures an insurer or the regulator has at hand to influence and change some of the conditions mentioned above. Finally, aspects like the impact of quality on demand and the effects of adverse selection had to be omitted. [202]

4.3 Transaction Cost Aspect

4.3.1 Comparison of Different Coordination Methods

After having looked into incentive compatibility issues in the preceding chapter, this section tries to predict outcomes for different modes of organizing the insurer-provider relationship. To do so, the outcomes for each of the three generic modes are evaluated in the following order. Firstly, potential forms of implementing this organizational schema are considered. Secondly, incentive compatibility according to the reimbursement scheme detailed above is assessed. Thirdly, the section concludes with a relative estimate of transaction costs to validate efficiency.

All assessments are based on findings from chapter 2.3.4 on transaction cost theory and chapter 3.3, which elaborates the applicable characteristics for the health sector.[203]

4.3.2 Coordination through Market

The most common implementation of a (spot-)market-like transaction form might be a version that gives more autonomy to the consumer: the patient picks a provider of her choice and the insurer reimburses the consumer.[204] This is different from the assumptions made above, which state that the insurer purchases on behalf of the consumer. Such a setup is unlikely for several reasons. The time period of contracts would need to be short. Otherwise control measures would be needed, which would require additional bureaucracy, an option that is by definition not available in the coordination mode market. Furthermore, it is close

[202] Cf. *Breyer, Zweifel and Kifmann* 2005, pp. 414-415.

[203] As far as possible conclusions are supported through *theory-based* literature, but little is available for this very specific approach.

[204] "Traditional indemnity products typically permit patients to have unrestricted choice of physicians, reimburse providers on a fee-for-service basis, and do not manage care except through utilization review (typically for in-patient care)." *Reschovsky, Kemper and Tu* 2000, p. 220.

to impossible that an insurer would contract with providers on an ad-hoc, on-demand basis for individual consumers, as the transaction costs for this would be immense. Bundling more consumers in such short term contracts is a logistic maze and is unlikely to be implemented. The author is not aware that anything like this has ever been implemented or has even been considered.

It is very difficult to achieve incentive compatibility in this mode. Incentives, especially on the provider side, are high powered and the means to control and influence are limited. To implement a reimbursement system as developed in chapter 4.2.1, a close understanding of the providers' cost structure is necessary. This is difficult to obtain, if relationships are only on a short term basis and change frequently. Especially with smaller providers the risk premium problem becomes relevant too. Without going into more detail, even these few aspects make pure market coordination under the aspect of incentive compatibility undesirable.

The judgment under the transaction cost aspect is similarly negative. Although specificity of investments is only moderate, the level of uncertainty, especially that caused by potential internal disturbances, is high. Further, due to the characteristics of services and goods, complete contracts are not feasible. This combination causes a relatively high level of transaction costs. The frequency parameter is irrelevant in this case, as it refers to the degree to which costs of a governance structure can be spread out over a number of transactions, a structure which does not exist in the market mode.

4.3.3 Coordination through Hierarchy

The preceding chapters on pure market coordination have shown that there is a need for some kind of governance structure. The organizational form of a hierarchy – or in more concrete terms, of a firm – provides this. In such a scenario, physicians would be employed by the insurer and hospitals would be an integral part of the company. Setups of this kind do exist in the form of health maintenance organizations, which are prevalent in certain parts of the U.S., especially in California (e.g. Kaiser).[205]

In this scenario, incentives are very low-powered. It is unlikely that salary would be highly dependent on performance in these settings. Rather than relying on incentives, the tight control and monitoring tools of the bureaucracy would ensure provider behavior that is in the insurer's best interest. Incentive compatibility is achievable in this context, but problems may arise as incentives are extremely low and motivation can be difficult.[206]

[205] For information on hierarchies in form of HMOs see *Cutler and Zeckhauser* 2000, pp. 591-593.
[206] Cf. *Scott* 2000, p. 1187.

Furthermore, the administrative costs of such a bureaucracy are high and flexibility is low. The advantage is that disputes arising from internal disturbances can be dealt with very efficiently. The governing body which oversees the now unified partners is the final court of appeal and can decide through fiat in a timely manner what has to be done. As outlined above, an insurer has a high number of relationships. Consequently, costs for governance can be distributed over these. The question is, whether the advantages of applying *fiat* and spreading costs offset the relatively high costs of running the bureaucracy. As specificity is only moderate, this seems to be unlikely, especially when compared with the last generic coordination mode.[207]

4.3.4 Coordination through Hybrid

The last means of coordinating the insurer-provider relationship is the hybrid form. It is based on relational contracts and is backed up by some means of bureaucracy. Implementation can be facilitated through contracts which cover time periods that are longer than the ones facilitated through the pure market. These contracts can define certain adaptation procedures or allocate decision rights for situations that are not predictable ex ante. Who exactly receives these rights is an open question, but it would be possible for the insurance company to designate a leader or establish a peer review board. The latter could handle any questions emerging from internal disturbances like quality problems. As contracts are relatively difficult to amend, annexes are an option to carve out parts that require adaptations more likely than others.

Such contracts are likely to allow the establishment of reimbursement methods as described in chapter 4.2.1. As the relationship between the two sides is of a longer duration and also closer due to certain joint bureaucracy features, it is easier to develop an understanding of the providers' cost structures. Incentives remain relatively high and undiluted, but can be aligned reasonably well. Certain trade-offs, for example with regard to smaller, risk averse providers, remain, but should not be of major concern.

Speaking about provider reimbursement, specific investments into information technology are feasible with less risk. Insurers can invest in human resources to maintain excellent relationships with key providers. On the other side providers can be more easily convinced to maintain a certain level of dedicated resources as an unpredicted termination of the contract is less likely. Through the governance system in place internal disturbances and uncertainties can be reduced to a minimum. Given the characteristics outlined in chapter 3.3.4, hybr-

[207] This is in accordance with the findings of *Ho* 2005, pp. 7-8, who also points out that "literature implies that the breadth of skills needed to run both a hospital and a plan is too large for the vertically integrated model to be viable except in very specific circumstances."

ids seem to be the preferable option as far as transaction costs are considered, especially with regard to ex post adaptation.

4.4 Choice

Based on above elaborations neither market nor hierarchy seem to be the ideal mode of organizing the insurer-provider relationship. The presence of (at least moderate) specific investments makes the market unfavorable, but the governance costs of a hierarchy do not seem to be justified either. The potential of a reimbursement scheme that enhances incentive compatibility supports this, as it reduces the risk for internal disturbances. In consequence, insurers are expected to choose a hybrid solution, most likely with an internal leader located at the insurance, but with elements of peer arbitration. The reimbursement method has to be customized, as there is no one-size-fits-all solution for the trade-off between flat fee and cost sharing.

Phrasing this in the words of the research hypothesis from chapter 1.2, health system insurers efficiently coordinate their contractual relationships with providers by pursuing hybrid arrangements. They efficiently align interests and incentives through payment methods.

The following chapter assesses how these arrangements impact the second part of the hypothesis which refers to social goals.

4.5 General Results Based on Expected Behavior of Insurers

Considering the external criteria access – with the sub-categories availability, accessibility and affordability – costs and quality, these theory-based predictions can now be put to a first test.

Availability is more likely to be guaranteed by a hybrid that benefits from stabilization by some governance structure as investments into dedicated assets are less risky. The cost-sharing component of the reimbursement scheme contributes to this aspect as well. Both arguments are also beneficial with regard to site specific investments, for example in more remote areas, which helps to improve accessibility. The criterion affordability is more difficult to assess. It is not clear how far a general interest in low costs and prices carries with regard to low income and/or high risk populations. Facilitating subsidies and income redistribution remains in the public domain. This directly leads to the point of cost control. Given that insurers are perfect agents of consumers, a hybrid structure enables them to control for costs as well as for quality. However, the question remains how knowledgeable insurers are to use their means to the best ends – and the efficiency of these ex post measures, especially with regard to assessing quality, has already been questioned above. Thus, for the quality aspect, a well designed, ex ante incentivizing payment system is paramount. If es-

tablished, the effects on quality should be positive. The same applies with regard to costs. As efforts are very difficult to assess, ex ante alignment is necessary.

The hybrid form seems to be especially beneficial when adaptation is required. The occurrence of such circumstances is very likely since maintaining a well balanced incentive pay system is a very delicate manner and, if ex ante alignment cannot be achieved for any reason, ex post control measures have to be the second line of defense. Furthermore, the transaction cost efficient form of a hybrid affects quality and costs, but in a supportive manner.

To summarize, the overall goal "basic coverage for everybody" is best supported by a payment system that allows for limited cost sharing (adjusted to risk attitude and cost-quality trade-off) combined with a hybrid contractual mode.

4.6 Brief Summary of Theory Application

Chapter 4 aimed to apply theory as elaborated in chapter 2 to the health sector, more specifically to the insurer-provider relationship, which was characterized in chapter 3. After ensuring that the chosen economic theory is compatible with the research object, the principal-agent aspect was elaborated. With regard to incentive compatibility only a second best solution could be achieved, as a cost-quality trade-off remains unsolved. Transaction cost theory shed some light into the insurer-provider relationship. The hybrid mode proved to be transaction cost efficient. Ex ante and ex post measures together support the overall societal goal to provide basic healthcare for everybody.

5 Excursus: The U.S. Health System

5.1 Entering the "Real" World

So far this examination has relied heavily on economic theory. Such an approach is helpful to gain insight into, or to inspire solutions for problems. However, at some stage all theory must be tested with regard to its applicability to reality. The model's predictions as well as assumptions have to be judged carefully. In the context of this paper this means that the hypothesis from chapter 1.2 is either verified or falsified.

There are different methods to test a hypothesis, one of which is a quantitative study. Due to resource and time constraints this was not feasible for this project, thus a more qualitative approach has been selected. The health care market of North Carolina has been chosen to serve as the object of a case study, to see if the preceding theory-based elaborations find some grounding in a real-world scenario. However, there is no such thing as a "perfect marketplace" and the North Carolina health care market has unique characteristics that forbid oversimplification and limit the ability to generalize findings.

For this reason this chapter starts off with a basic characterization of the U.S. health system. Based on this, North Carolina is considered in more detail in chapter 6, laying the foundations for an in-depth look into the organization of the insurer-provider relationship in this specific state. To have a better understanding of the meaning of country- or state-specific statistics, international comparisons are given where appropriate.

A reader who is familiar with the U.S. health system and its history may well skip this excursus. All others are advised to read these pages at least later on, before making final judgments about health care in the U.S. Although this chapter is not needed to be able to follow the course of the paper and does not provide a comprehensive elaboration that covers *all* relevant aspects, it is important to know at least some complementary aspects of the status quo and key events in the past to appreciate the current system in a more balanced manner. Thus, this excursus is merely intended to provide some incentives to encourage further reading.

5.2 Country Background

This section provides a first introduction into the U.S. health system, beginning with basic statistics on the country itself. About 300 million people live the United States of America in an area of 9,161,906 square kilometers.[208] Thus, the U.S. population is 3.7 times larger than the German population and lives on a 26 times larger area.[209] With regard to general health outcomes (life expectancy, DALY etc.) the U.S. achieves average results compared to its peer countries.[210] Its GDP per capita put the U.S. in the top of the league, in front of other industrialized countries like the UK, Japan or Germany.[211]

In 2004 the U.S. spent 15.3 % of its GDP on health, which was significantly more than, for example, Germany (10.6 %), the Netherlands (9.2 %) or the United Kingdom (8.1%). This gap becomes even more apparent when total health expenditure in USD purchasing power parities is considered. With 6102 USD PPP the U.S. spends twice as much as Germany (3043 USD PPP) or the Netherlands (3041 USD PPP). The United Kingdom is even lower (2508 USD PPP). In 2003/2004 the U.S. health expenditure growth rate was 4.1 %, which is typical for recent years.[212] The adjusted average real annual growth per capita from 1992-2002 confirms these differences also in the long run, stating 3.3 % for the U.S. and only 2.0 % for Germany.[213]

[208] Cf. *U.S. Census Bureau* 2007, n.p., figures for 2000.
[209] Cf. *Destatis* 2007, n.p., figures for 2002.
[210] Cf. *WHO* 2006, pp. 170-176.
[211] Cf. *Heston, Summers and Aten* 2006, n.p.
[212] Cf. *OECD* 2006, n.p.
[213] Cf. *Anderson, Hussey et al.* 2005, p. 905.

In 2004 the main source of the total 1.6 trillion USD health care spending was government funding with 44.4 %. Private group and individual health insurance (36.1 %) and out-of-pocket payments (15.1 %) accounted for most of the rest.[214] By 2007, the government share of health care expenditure is expected to be closer to 50 % as the effects of Medicare Part D (enacted 2006) were not yet visible in 2004.[215]

5.3 Financing

5.3.1 Identifying Sub-Systems

The U.S. health system financing can be divided into different subsystems. These subsystems are

- Medicare, which covers elderly people over the age of 65 as well as certain groups of disabled people and patients with end-stage renal disease,
- Medicaid, which is dedicated to certain deserving vulnerable groups of the population,
- the private health insurance sector, representing individual and group insurance,
- several largely independent systems like the Veterans Administration or the Indian Health Service, with public financing arrangements and mostly their own dedicated facilities,[216] and
- the large number of uninsured who do not have any form of coverage.

In 2005, approximately 13.7 % of the population were covered by Medicare.[217] Of the population younger than 65 years 60.8 % were covered by employer based group health insurance, 5.4 % by private non-group insurance, 15.9 % by Medicaid and other public programs and 17.9 % were uninsured.[218] Circumstances vary significantly from state to state. For example, the rate of uninsured people ranges from 8.7 % in Minnesota, and 15.6 % in North Carolina, up to 24.5 % in Texas.[219]

The following sections provide some basic insight into the different subsystems.[220]

5.3.2 Medicare

Created in 1965, Medicare is a federal program for all people 65 and older as well as for younger people with permanent disabilities.[221] In 2006 its total benefit payments were 374

[214] Cf. *National Center for Health Statistics* 2006, p. 31.
[215] Cf. *Goldman Sachs Group* 2005, p. 1-2.
[216] For more information see the institutions' websites, http://www.va.gov and http://www.ihs.gov respectively.
[217] Cf. *DeNavas-Walt, Proctor and Hill Lee* 2006, p. 21.
[218] Cf. *Brodt, Burton et al.* 2006, p. 10.
[219] Cf. *DeNavas-Walt, Proctor and Hill Lee* 2006, p. 27.
[220] The VA and HIS are excluded as they only have minimal impact on the health system as a whole, at least as far as the research question of this paper is concerned.

billion USD. Costs for Medicare are sky-rocketing and with the baby-boomer generation hitting retirement age this trend will continue. Four different parts (Medicare Part A, B, C, and D) make up the whole Medicare system.

Medicare Part A contributes to in-patient care, certain nursing facilities, home health, and hospice care. It is mainly funded through a payroll tax of 2.9 % which is shared in equal parts by the employer and the employee.

Medicare Part B covers physicians fees,[222] out-patient, home health, and preventive services. General tax revenue and a monthly premium of 88.5 USD (in 2006, expected to be 98.4 USD in 2007) higher, income related premiums for those with income over 80,000 USD) finance this part.

Medicare Part C represents the option for Medicare beneficiaries to enroll in private managed care plans, which combine Part A, Part B, and usually Part D. These plans were only recently revitalized; currently Medicare pays 111 % of costs that would accrue in the regular fee-for-service Medicare program towards these plans.[223]

Until *Medicare Part D* went into effect in 2006, prescription drugs were not covered by Medicare. This new benefit is facilitated through private plans. Participants pay a monthly premium which averaged 25 USD across all plans in 2006. The rest is funded through general revenues and state payments.

Taken all parts together only about 45 % of beneficiaries' total costs are covered, the rest is paid for by patient co-payments or co-insurance. There is no cap on out-of-pocket spending, which is particularly high as long term care as well as vision and dental care are not included. Consequently, many of the increasing number of elderly have to rely on co-insurance through former or current employers (availability, however, is decreasing) or are dually eligible for Medicare and Medicaid, but only if they meet the rigid Medicaid criteria outlined below.

5.3.3 Medicaid

Medicaid funding is shared by the federal government and the states. Prima facie it seems to be a general program for low income populations. However, by far not all poor people are

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[221] All the information on Medicare is taken from *Kaiser Family Foundation* 2007a, pp. 1-2, which provides the most up-to date information available. Timeliness is paramount as regulations are constantly changing. A more comprehensive report, published as recently as March 2007, is *Kaiser Family Foundation* 2007b.

[222] Cave: physicians have to be paid separately from the hospital bill, as most of the physicians treating patients at a hospital are not hospital employees. Exceptions apply mainly to large university hospitals. Generally, a trend to more so called "hospitalists", which are physicians only working in a hospital, can be observed; cf. *Pham, Devers et al.* 2005, p. 101, and *Schneller and Epstein* 2006, p. 308.

[223] In 2005, Medicare Part C covered 18.8 million people through capitation based managed care organizations; cf. *Robinson* 2006, p. 1481.

eligible, as, aside from income and asset criteria, categorical restrictions must be met simultaneously. Eligibility categories are pregnant women, children under the age of 19, parents of dependent children, disabled and elderly persons.[224] States can decide to additionally cover optional services or to apply for waivers, which allow states to expand eligibility to different groups of people, or to make other amendments to the program. If somebody is eligible for Medicaid *and* is enrolled, the coverage is usually relatively comprehensive, even compared to what commercial insurances offer.[225]

Closely linked to Medicaid is the State Children's Health Insurance Program (SCHIP), which provides coverage to a large group of children that otherwise would not be eligible under the restrictive Medicaid rules.[226]

In 2003, covering more than 52 million people, Medicaid accounted for one sixth of personal health care spending in the U.S. and for almost half of the nation's spending on long-term care. Medicaid, in the same way as Medicare, is a key component of the U.S. health system.[227] Changes, for example with regard to reimbursement, can severely impact providers as well as other branches of health care coverage.[228]

5.3.4 Private Employer Sponsored Health Insurance

Since World War II employer based group health insurance has evolved to be the backbone of the American health insurance system.[229] The term refers to the fact that insurance products are sponsored by the employer, rather than purchased by an individual consumer.[230] Considerable tax subsidies (estimates for 2004 suggest a figure around 209.9 billion USD) support this system.[231] As the regulatory power over the insurance sector is with the states, the following descriptions are subject to sometimes subtle but nonetheless decisive variations across the nation.[232]

Employer based group insurance means that an employer selects one or more insurance plans on behalf of the employees. Plans are community rated, i.e. there is no medical exam

[224] This means, for example, that a 25 year old, who has insufficient income and assets (or even none at all) to buy private health insurance, but is neither disabled nor has kids, is not eligible for Medicaid. The status of legal and illegal immigrants is only one of various factors that add immense complexity to the whole system.
[225] Cf. *Kaiser Commission on Medicaid and the Uninsured* 2005, pp. 3-6.
[226] Cf. *Kaiser Commission on Medicaid and the Uninsured* 2005, p. 3.
[227] Cf. *Kaiser Commission on Medicaid and the Uninsured* 2005, p. 1.
[228] For more comprehensive information see *Kaiser Commission on Medicaid and the Uninsured* 2007.
[229] Cf. *Fein* 1986, pp. 22-24.
[230] Cf. *Garner* 2006, p. 1-1.
[231] Cf. *Glied and Borzi* 2004, p. 403; the tax subsidies benefit over-proportionally high income employees.
[232] See *Claxton* 2002, pp. 7-19, illustrate state and federal regulation, highlighting the variations across states and covering essential federal legislation like the Health Insurance Portability and Accountability Act (HIPAA) and the Employee Retirement Income Security Act (ERISA).

or underwriting. Costs of premiums are usually shared between employer and employees.[233] For both participation is voluntary, i.e. companies do not have to offer insurance plans and workers are not mandated to purchase any of the offered plans. The range of options is highly correlated with the size of the employer. Larger companies usually offer several plans whereas 70 % of smaller ones have only one option (47 % overall), if any at all.[234] In most cases employees can obtain better deals in the group market than in the individual market, for which increased bargaining power and administrative efficiencies are two reasons. However, it is not possible to follow individual preferences; for example, the employee can not choose a less comprehensive but cheaper package than the one the employer offers. Although costs are the employers' key argument when deciding between different plans, the outcomes with regard to selection of qualitatively favorable plans seem to be positive overall.[235] Certain drugs, as well as dental or vision care are generally not covered by an average health plan.[236]

Large employers tend to offer self-funded employee health benefit plans. In this case companies build their own risk pools and usually purchase administrative services from commercial insurance providers.[237]

There are several problems attributed to this employer based system. A common argument is job-lock, which means that employees, especially those with higher health risks, hesitate to change employers as they might not be able to find a new similarly beneficial plan with a new employer or as their physician may have a contract with this, but not with another plan. These effects can be observed empirically, but welfare consequences are much more difficult to estimate.[238] The Health Insurance Portability and Accountability Act of 1996 tried to mitigate some of these factors but the link between employer and health insurance is still a barrier for employees and their families, especially when the new employer does not offer health insurance coverage at all.[239]

Another fact is that employment based coverage is declining. One reason is that because of rising premiums fewer employees can afford it, especially as employers tend to increase the

[233] Depending on factors like state regulation and insurance carrier premiums can be individually adjusted for example according to demographic factors; cf. *Claxton* 2002, pp. 4-6.
[234] Cf. *Glied and Borzi* 2004, p. 406; one reason for this is that in small companies the illness of a single employee can push premiums considerably as the numbers are too small for practical risk sharing.
[235] Cf. *Glied and Borzi* 2004, pp. 406-407.
[236] Cf. *Garner* 2006, p. 2-26.
[237] Cf. *Claxton* 2002, p. 3.
[238] Cf. *Madrian* 1994, pp. 52-53.
[239] Cf. *Glied and Borzi* 2004, p. 406.

workers' share of premium payments or co-payments to balance this trend.[240] Furthermore, fewer employers offer health insurance coverage in the first place.[241] Not all of the decline since 2000 has been absorbed by the individual insurance sector, which suggests that a significant proportion of those losing employer based coverage were subsequently without insurance coverage.[242] Another factor putting increased pressure on premiums in the group rated employer insurance market is the rising average age of employees due to general demographic developments, thereby fostering adverse selection incentives.[243]

5.3.5 Private Individual Insurance

Private individual health insurance has a much smaller market share than employer based coverage. It generally is less federally regulated than group insurance; thus the remarks on variation of regulation between different states in chapter 5.3.4 apply at least as much for private individual insurance.[244]

The main differences between group and individual insurance are medical underwriting and risk adjusted premiums. This means that depending on pre-existing conditions coverage can be restricted and/or premiums are increased. In certain cases coverage can be denied completely.[245] Depending on state legislation and insurance plan, annual contract renewal requirements are prevalent, which allow the insurance companies to increase premiums for patients according to illnesses they acquired in the preceding period. Any chronic condition represents a fundamental financial risk in this context.[246]

Generally, individual health insurance is less comprehensive but more expensive than group insurance policies.[247]

The role of individual private health insurance might become more predominant, if a proposed change in the tax code is passed. This would subsidize consumers who buy insurance by themselves through a tax break. Currently tax subsidies are only available for employer based health insurance. However, to date the success of this endeavor is very uncertain.[248]

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[240] In 2006, the average premium for an individual over all types of plans was 4,242 USD of which the average worker contribution was 627 USD; cf. *Claxton, Gabel et al.* 2006, p. 479.
[241] Cf. *Kaiser Commission on Medicaid and the Uninsured* 2005, pp. 12-13; employers are especially sensitive to sharp rises in premiums as well as recessions.
[242] Cf. *Robinson* 2006, p. 1476.
[243] Cf. *Seeliger Keenan, Cutler and Chernew* 2006, p. 1497.
[244] Cf. footnote 232.
[245] Cf. *Garner* 2006, p. 1-2.
[246] Cf. *Glied and Borzi* 2004, p. 407, and *Claxton* 2002, pp. 4-6. *Cutler and Zeckhauser* 2000, p. 567, are not completely right in that respect as they state that "[m]arkets for multi-year insurance do not exist." Also see p. 626.
[247] Cf. *Federal Trade Commission; Department of Justice* 2004, p. 10.
[248] Cf. *Fletcher* 2007, p. A04.

5.3.6 The Uninsured

Prior to examining the financing of health care for the uninsured, some comments must be made *who* the uninsured are, especially because this group is very heterogeneous.

In 2005, 46.1 million non-elderly Americans were without coverage. By only looking at their income level, leaving aside their medical condition and other factors, this number can be divided up into 25 % who are eligible for public coverage but are not enrolled, 56 % that are neither eligible nor can afford coverage without assistance, and 20 % who are not poor with regard to their income status but nonetheless forgo insurance coverage.[249] Common reasons for the first group are lack of knowledge, bureaucratic obstacles, and social stigma. The second group, well, basically does not have enough political clout to cause the legislature to alleviate their situation. The third group consists mainly of people who do have significant pre-existing conditions and therefore cannot purchase private health insurance at all or only at extremely high and thus unaffordable premiums. Another significant portion of this last group are free-riders who do not think that they have a relevant health risk and in case of emergency rely on the social safety-net.[250]

Another group of concern are people who have insufficient coverage, which means that their insurance coverage does not protect them from catastrophic costs with regard to their income, be it through co-pays or deductibles. Including these underinsured *Schoen, Doty et al.* 2005 estimate that in 2003 35 % of the population (61 million people) was either all or for parts of the year uninsured, or did not have sufficient coverage.[251]

Other results show that even short periods without coverage have negative effects on access to health care.[252] Generally, the uninsured "receive less preventive care, are diagnosed at more advanced disease stages, and once diagnosed, tend to receive less therapeutic care (drugs and surgical interventions); having health insurance would reduce mortality rates for the uninsured by 10-15 percent; and better health would improve annual earnings by about 10-30 percent (…) and would increase educational attainment."[253]

In 2004, people who were without health insurance all year long paid 35 % of their health care expenses out-of-pocket. Most of the rest accounted for uncompensated care which totaled 40.7 billion USD in the same year.[254] The largest share of uncompensated care is pro-

[249] Even this breakdown masks significant variations within these and other subgroups; for more details see *Dubay, Holahan and Cook* 2007, p. 22 and p. 26.
[250] Cf. *Dubay, Holahan and Cook* 2007, pp. 28-29.
[251] Cf. *Schoen, Doty et al.* 2005, pp. 291-293.
[252] Cf. *Kaiser Commission on Medicaid and the Uninsured* 2005, p. 6.
[253] *Hadley* 2002, 1; this reader provides a number of specific examples supported by empirical data.
[254] This figure includes the uncompensated care accrued by people who go without health coverage for a part of the year.

vided by hospitals (63 %), physicians (18 %), and clinics and direct care programs (19 %).[255] However, not all of the uncompensated care is truly uncompensated. In 2004, federal, state and local funding covered about 85 % of uncompensated care through various programs.[256] The remainder of the costs are shifted to insured patients by implicitly pricing uncompensated care into their bill.[257]

5.4 Insurance Carriers

The current health insurance market is characterized by extremely high and even further increasing concentration. Many commercial health insurance markets are dominated by two or three companies.[258] These companies increasingly carry all types of products, many of which were originally offered by niche insurance companies.[259] At the same time, they serve all potential customers from individuals and employers to public payers.[260] Over the past few years profit margins and other financial key indicators of insurance companies performance were excellent across the board, and non-profit plans were able to accumulate extraordinary reserves.[261]

Other factors that are relevant in concentrated markets support this picture. Due to the lack of real innovations (as HMOs were several decades ago) there is only a very limited threat to market shares from new entrants, especially as all the big players also offer new products, such as high-deductible plans. Therefore, competition with substitute products is very limited. Whenever a new company enters a market this usually happens through acquisition thus rather increasing concentration. On the supplier side similar concentration trends can be observed. However, insurers were able to pass on increased prices and in most cases even maintained or even decreased the medical cost ratio. On the purchaser side employers and consumers were unable to build up sufficient pressure in this highly concentrated market.[262]

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[255] Figures from 2001.

[256] For example, UNC Hospitals, Chapel Hill, NC, provide about 180 million USD uncompensated care per year; cf. *N.N.* 2007, n.p.

[257] Cf. *Hadley and Holahan* 2004, pp. 2-4.

[258] *Robinson* 2004, p. 15, note that the Herfindahl-Hirschman Index "for commercial health insurance at the state level is very high, with only three of the state indexes falling below 1,000 (the FTC/DOJ threshold for low level of antitrust concern), twelve falling between 1,000 and 1,800 (moderate level of antitrust concern), and thirty-four exceeding 1,800 (high level of antitrust concern)."

[259] Cf. *Robinson* 2004, p. 12. For 2006 figures on products offered see Figure 5.

[260] Cf. *Robinson* 2006, p. 1475.

[261] Aetna is an exception as the company almost crashed due to an overly aggressive acquisition strategy. Cf. *Robinson* 2004, p. 19.

[262] Cf. *Robinson* 2004, p. 20-21. Concentration by itself is not necessarily negative. However, current and forthcoming research indicates that insurers use their power in highly concentrated markets to conduct third degree price discrimination; (personal communication).

Of all insurers Blue Cross and Blue Shield are unique and play a dominant role. Though being state specific and technically owned by separate companies, they cooperate, for example, to serve multi-state employers or for branding campaigns. If considered as one company, they account for 44 % of the national market, and after excluding their for-profit branches they still represent 31 %. Regional for-profit plans do not dominate a single market, and on the national level, besides the "Blues" there are only three major commercial insurance carriers (United Health Group, Aetna, CIGNA) left.[263]

In the short term price competition is likely to hold down premiums (the 7.7 % in 2006 was the lowest premium growth rate since 2000), the high reserves of non-profit carriers being one of the reasons for this. However, prospects are highly uncertain.[264]

As expansion through new products or acquisition reaches its limits, public programs are currently one of the most interesting fields. Medicare and Medicaid increasingly purchase commercial insurance products and plan management capacities, Medicare Part C and D completely build on private plans. Nonetheless, concentration trends are prevalent in this relatively new sector too. Furthermore, this public purchasing frequently leads to monopsony-like situations that bring their own set of problems.[265]

5.5 Providers

During the 1980s and 1990s, the organization of health services delivery has undergone significant changes.[266] Core trends were horizontal consolidation of physicians and of hospitals as well as vertical integration of various forms between the two.[267] In 2005, 55 % of all U.S. community hospitals were part of a hospital system (with central ownership and management function) and 29 % were members in a hospital network.[268] The aim was to increase bargaining power to be able to negotiate on a level playing field with managed care organizations which frequently held monopsonies. Efficiency gains and consequently lower prices were the exception; on the contrary, in less competitive markets the opposite occurred.[269]

However, this trend of integration is slightly changing. According to one study, in 2000/2001, 65 % of hospitals interviewed owned primary care physician practices, especially in concentrated markets, but the majority of hospitals has reduced the size of such

[263] Cf. *Robinson* 2004, pp. 15-17; data for 2002/2003.
[264] Cf. *Claxton, Gabel et al.* 2006, p. 484.
[265] Cf. *Robinson* 2006, pp. 1479-1484.
[266] *Bazzoli, Dynan et al.* 2004, p. 247, found and analyzed more than 100 studies on this topic.
[267] Cf. *Bazzoli, Dynan et al.* 2004, pp. 250-251.
[268] Cf. *American Hosptial Association* 2006, n.p.
[269] Cf. *Evans Cuellar and Gertler* 2005, p. 26.

practices in recent years.[270] This is similar to horizontal integration of physician practices. Whereas thousands of IPAs were created in the late 1980s and early 1990s the number has dropped significantly. Factors like uncertain financial benefits, high start-up costs and anti-trust risks are likely to have led to this change.[271]

5.6 A Brief History

Around the time when social health insurance was established in Europe, starting with Germany in 1883, health insurance was no issue at all in the U.S. Government was vastly decentralized, so that any countrywide action on such issues was unlikely in the first place. Furthermore, there was no major threat to social and political stability as there was in Europe, and the socialist party played no relevant role in U.S. politics.[272] When finally, during the first decade of the twentieth century, often inspired by their European counterparts, early movements towards comprehensive health insurance began, they faced a quite unlikely coalition of insurance and pharmaceutical companies, christian scientists, businesses, physicians and unions opposing any government interference on these issues.[273] Another strike against early health insurance movements was the beginning of World War I, which opened the door for defamatory rhetoric, portraying social or mandatory health insurance as paternalistic, incompatible with American values, and designed by America's war enemies.[274] After being silenced for several years, the following decades saw a number of propositions come and go. Rapidly increasing costs and adverse economic circumstances (e.g., the Great Depression) changed some of the key players' minds, but never achieved a majority large enough to produce any significant results on a nationwide level. Government funding was directed towards public health or scattered around incremental social security initiatives. However, as physicians' and hospitals' income became more and more insecure, pre-paid hospital plans emerged, representing the early beginnings of private health insurance in the 1920s.[275] Originally, those plans' prime intention was to secure provider income rather than patient financial wellbeing. However, although facing various obstacles – also from within

[270] Cf. *Lake, Devers et al.* 2003, p. 471.
[271] Cf. *Casalino* 2006, pp. 573-574.
[272] Cf. *Starr* 1982, pp. 240-241.
[273] Also see *Oberlander* 2003, p. 20, on these issues. In varying alliances such coalitions were present (and usually successful) most of the time when health reform was on the political agenda.
[274] Cf. *Starr* 1982, pp. 249-255.
[275] *Fein* 1986, p. 11, presents the example of the following plan established in 1929: "It was under financial pressure that D. Kimball's plan, initially for Dallas schoolteachers, was born. The 1,250 schoolteachers were encouraged to prepay their hospital care at Baylor [hospital] for 50 cents a month. In return they were offered twenty-one days of semiprivate care (including use of operating room and various ancillary services—anesthetic, lab tests) in a twelve month period."

the medical profession – these developments built the basis for the first Blue Cross plans.[276] The way private health insurance came into existence, driven by the economic need of providers, partly explains how today's system is set up.[277] Attracted from the early successes commercial insurance companies entered the field and – due to a lack of ties with hospitals and other providers – followed a cash-indemnity strategy. By 1941, altogether a total of 12.3 million Americans had health insurance. No plan, however, provided comprehensive benefits; all were subjects to caps, for example, maximum days of hospital care or restrictive financial limits.[278]

The 1940s put health reform back on the political agenda, but did not achieve much more than symbolic value.[279] Some war related policies, however, would shape the organization of private health insurance and contribute significantly to today's system. As wages were frozen to stabilize the war economy during times of worker shortage, companies had to use other means to compete for employees, one of them being the provision of social benefits like health insurance. Favorable tax codes did their part to rapidly spread employer based health insurance.[280] Since then, health insurance typically has always been part of employees' overall compensation package.[281]

Back on the political venue, by 1950, three major attempts to establish some form of comprehensive social health insurance had failed and a pattern that could be observed since 1935 was confirmed: "Instead of a single health insurance system for the entire population, America would have a system of private insurance for those who could afford it and public welfare services for the poor."[282]

Over the years community rated Blue Cross plans faced severe adverse selection problems, when competing against experience rating commercial insurers. The population group which suffered most from the effects, intensified by sharply rising medical costs, were the elderly, especially when Blue Cross finally had to give in and changed to experience rating too.[283] Proponents of universal coverage saw this as a chance to make at least an incremental step towards their goal by establishing universal coverage for the elderly. This group

[276] Blue Shield plans for physicians services emerged in 1939; cf. *Fein* 1986, p. 27.
[277] Cf. *Fein* 1986, pp. 11-18., and *Fox* 2001, pp. 4-5.
[278] Cf. *Fein* 1986, pp. 19-21.
[279] Although health reform was a presidential priority, opposition was fierce. Again a war helped encourage propaganda that fell on fertile ground: "For now compulsory health insurance became entangled in the cold war, and its opponents were able to make "socialized medicine" a symbolic issue in the growing crusade against communist influence in America." *Starr* 1982, p. 280.
[280] Cf. *Fein* 1986, pp. 22-24. As *Robinson* 2001, p. 2622, says: "Employers entered into the financing of health benefits by historical accident and remained to purchase employee loyalty with pretax dollars."
[281] Cf. *Glied and Borzi* 2004, p. 404.
[282] *Starr* 1982, p. 286.
[283] Cf. *Fein* 1986, p. 31 and pp. 52-53.

seemed to be especially favorable for their undertaking as, according to the American public opinion, they are needy *and* deserving. Nonetheless, this was no easy undertaking, and it took fifteen years until, in 1965, a bill aiming at a minimal consensus was passed. Although coverage was still very restrictive and had several caps, it was a significant move that gave the government a substantial role in organizing health insurance, far more than most people originally had expected.[284]

In the same bill in which Medicare was passed an afterthought was tweaked in: Medicaid. It comprised several parts which were related to the poor and promised assistance based on means testing. The way it was assembled did not promise a very successful future. However, although still far from perfect, Medicaid has expanded more than most had expected.[285]

Rising costs of the Medicare budget in the early seventies triggered another piece of legislation, the so called HMO Act. Health maintenance organizations had existed for a long period of time, but without playing any significant role. Trying to control expenditures, the HMOs' capitation concept was appealing, as the fee-for-service approach seemed to present wrong incentives. The act provided financial support, overrode state legislature that hampered HMO proliferation and required certain employers to offer at least two HMO options to their employees. Thus, HMOs enjoyed continued growth over the following decades.[286]

Another managed care development took place in the late 1970s and early 1980s. Preferred provider organizations emerged, which were distinct from HMOs, as they did not accept capitation risk, and patients were able to access out-of-network providers without losing all their coverage benefits. Other features, like utilization review mechanisms, developed in other health insurance sectors, and on the provider side a trend towards larger and thus more powerful integrated care delivery systems, like physician-hospital organizations, could be observed.[287]

The reliance of government programs on managed care organizations (Medicare and Medicaid purchase services in the commercial sector) and continuous, although not always equally strong legislative support helped various kinds of managed care organizations to

[284] Cf. *Oberlander* 2003, pp. 22-35. At this stage Medicare was not universal, not even for people over 65, as eligibility for social security benefits was a condition for participation in the program. *Oberlander's* 2003 book "The Political Life of Medicare" gives interesting insights into the turbulent course Medicare took since its birth in 1965.
[285] Cf. *Brown and Sparer* 2003, p. 34.
[286] Cf. *Fox* 2001, pp. 6-7.
[287] Cf. *Fox* 2001, pp. 8-9.

spread, mainly at the expense of conventional indemnity insurance as Figure 5 illustrates. The early 1990s were the strongest growth period of this trend.[288]

At the same time the Clinton health reform plan was another attempt to achieve universal coverage, granting this right to all Americans in a way that "it can never be taken away."[289] This highly complex reform proposal tried to integrate the best of many different streams of thought, but failed to be ever passed.[290]

In the last decade of the twentieth century managed care organizations greatly diversified. The traditional group-HMO lost market share and a plethora of different variations of hybrids evolved, some of them closer to PPOs, others more like POS organizations;[291] "there are no clear distinctions between health care plan types anymore"[292] and it is close to impossible to provide meaningful characterizations for any of them.[293]

The relative decline of HMOs was probably the first sign of what has become known as the managed care backlash. Extensive literature gives insight into the many potential reasons for this sudden retreat from managed care.[294] A key aspect probably was that the public image of HMOs became extremely negative.[295] Patients reacted fiercely against restrictions applied by HMOs and providers shared this antipathy. Negative media coverage did the rest.[296] Employers dropped HMO coverage and capitation payment declined sharply.[297] Consequently, today the somewhat stigmatized term "managed care" is used only with great caution. But this does not mean that there is no more management of costs and care. Basically all insurance plans use cost control measures and some kind of utilization review.[298] The newest trend are high-deductible health plans with a saving option (HDHP/SO), which were introduced only recently and are aimed at demand-side incentivizing.[299]

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[288] Conventional indemnity insurance, which had a market share of 71 % in 1988, were drastically less prevalent in 1998 when it only accounted for 14 % of health plans; cf. *Fox* 2001, pp. 10-11.

[289] *Zelman* 1994, p. 10.

[290] There is extensive literature on the rise and fall of the Clinton plan; *Skocpol* 1995, pp. 71-79, provides a good overview on some of the obstacles that may have caused its failure. Also see *Lambrew* 2004, p. 446.

[291] Cf. *Mechanic* 2004, pp. 79-80.

[292] *Fox* 2001, p. 8.

[293] Cf. *Fox* 2001, pp. 3-4.

[294] For example see *Miller* 2006, pp. 861-876.

[295] In 2000 a survey found that only 28 % of the American population thought that managed care companies do a good job, ranking it at the same percentage level as the tobacco industry; cf. *Mechanic* 2004, p. 76.

[296] Cf. *Greene* 2003, p. 25.

[297] For more information on the managed care backlash see *Robinson* 2001 and *Mechanic* 2004.

[298] Cf. *Claxton* 2002, p. 3.

[299] *Jost and Hall* 2005, pp. 395-418, provide insight into consumer driven healthcare which includes concepts like HDHP/SO or health savings accounts.

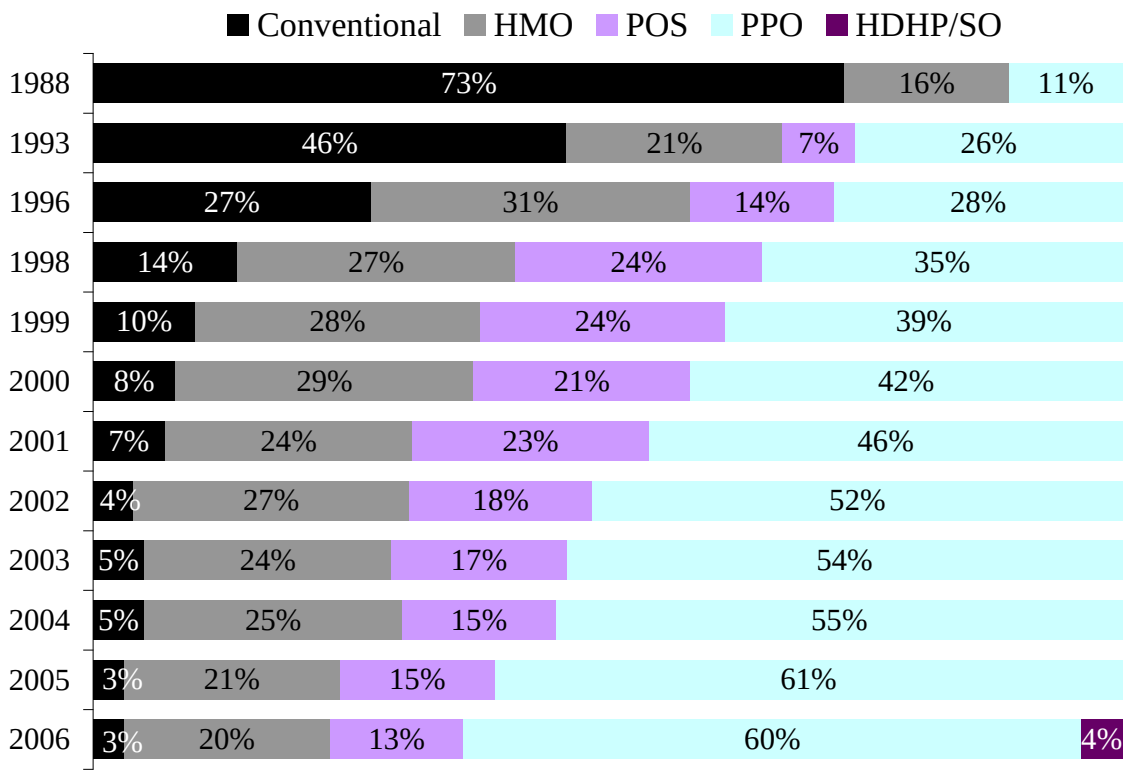

Figure 5: Plan Enrollment By Covered Workers & Plan Type, Selected Years 1988–2006
Source: Own illustration, based on *Claxton, Gabel et al.* 2006, p. 482.

5.7 Conclusion

What is coming up in the 21st century? Currently health care researchers and policy makers think that the 2008 presidential elections might provide a new chance to leave incrementalism behind and to take on substantial health reform. The future will tell if this hope is justified.

Due to the brevity of this chapter, significant aspects had to be omitted, for example, the highly important role of the states in shaping the health care sector. Thus, the message to be taken away from this chapter is that the history of the U.S. health system is eventful, and a meaningful understanding of the status quo requires at least awareness of how things have evolved.

6 The North Carolinian Health Care Market

6.1 Approach

In earlier chapters economic theory was elaborated on to shed light onto the insurer-provider relationship, in particular into incentive compatibility and organizational form. This chapter tries to capture the current situation in North Carolina with regard to these specific questions, thereby providing a "real-world" benchmark.

To assess many of the relevant aspects like risk attitude or specificity of investments, it is important to capture stakeholders' perceptions. These may occasionally diverge from observed facts. However, when executives make decisions, for example about organizational forms, their judgment is not only based on objective facts, but also on the facts as seen and interpreted from the actor's point of view.[300] Thus, this chapter combines information and data derived from literature with insights gained from the qualitative interviews which were described in chapter 1.4.2.[301]

First, after describing very briefly the state of North Carolina, key market characteristics are outlined, focusing on issues that were frequently raised in the interviews and that are explicitly or implicitly related to the theory this analysis is built on. Thus, the aspects of concentration, competition, insurer-provider power balance and regulation indicate whether providers and insurers act under circumstances similar to those assumed above or if other confounding variables have to be taken into account.

Second, returning to the structure used before the excursus, the parameters measurability and information asymmetry, risk and risk attitudes, specificity, uncertainty, and frequency are scrutinized to elaborate to which extent they are present and relevant in the decision making process.

The last step focuses on the predicted outcomes themselves. Incentive compatibility, organizational form and general outcomes with regard to access, costs, and quality are examined.

It is important to note that all of these sections are intended to be *descriptive* of the facts and the perceptions collected. An assessment will be conducted at a later stage.[302]

6.2 Prologue: North Carolina – The State

In 2005, 8,682,066 people lived in North Carolina, a state which comprises 100 counties.[303] The state is mainly rural with few urban areas. Of the latter two are most noteworthy: Charlotte, the state's largest city (about 600,000 inhabitants), and the so called Research Triangle, which comprises Durham, Chapel Hill and the state's capital, Raleigh. The Triangle is characterized by a large number of research institutions, related companies and universities.

[300] Cf. *Hambrick, Finkelstein and Mooney* 2005, pp. 478-482; bounded rationality is one of the aspects playing into this.

[301] IRB approval has been obtained, all participants have given informed consent, and anonymity was guaranteed. Thus, no sources are indicated. Coded references were used by the author for the graded version of this paper, but have been removed from the published document. Please contact the author for further details.

[302] E.g., a high degree of concentration may or may not have an effect on competitiveness, as various other factors as well as long term perspectives have to be taken into account.

[303] Cf. *NC Census* 2006, n.p.

The rest of the state is extremely rural. On average, there are 64 persons per square kilometer in North Carolina, compared to 231 persons per square kilometer in Germany and 75 persons per square kilometer in Mecklenburg-Western Pomerania, the state with the lowest population density in Germany. Thus, there is a significant rural-urban divide in the state that goes along with significant variations of parameters like income level and health insurance coverage.[304]

6.3 Market Characteristics and Entrepreneurial Freedom

6.3.1 Concentration

One central characteristic of the North Carolinian health care market is the increasing concentration which has occurred over the last 10 or 15 years. In the early 1990s about 21 or 22 insurance and HMO companies were in the market. At least 15 of those were considered strong competitors in 1993. In 2003, when about 86 % of private health insurance contracts were employer sponsored, the largest plan in this sector had 50 %, the three largest plans together 91 % of the business.[305] Although the large group market is characterized by high client-turnover rates around 20 % – 25 % this has been rather stable over recent years. The few new entrants into this market have decreased rather than increased the number of competitors in the market, as these steps were usually performed through acquisitions or mergers and most large players already had some kind of subsidiary in place. Companies that were not able or willing to invest in trends like managed care and networks did not survive.[306] This led to a still continuing trend of big players getting bigger and the small ones getting smaller. All the ones that remain have acquired other players. Of the nation's five largest insurers four are present in North Carolina and add up to a cumulative market share of 94 %.[307] Looking at specific segments the picture is the same. For example, in the small group market for employers with up to 50 lives two or three strong competitors are dominating few smaller "B-players".

With regard to the individual sector the situation is even more extreme. Until recently BCBSNC was the only source for this kind of insurance, as all other competitors have left the state. Consequently, BCBSNC took over all existing memberships and expanded its membership rapidly. By legal mandate BCBSNC is required to offer every North Caroli-

[304] Own calculations; data from *U.S. Census Bureau* 2007, n.p., figures for 2000, and *Destatis* 2007, n.p., figures for 2002, respectively.
[305] Cf. *NC Census* 2005, p. 4, and *Robinson* 2004, p. 14, respectively. The Herfindahl-Hirschman Index for the state was 3,353.
[306] Cf. *Robinson* 2004, p. 20, and I4Q4. The very small number of new entrants in the health insurance market is not only typical for North Carolina but can be observed all over the country.
[307] Cf. *Robinson* 2004, p. 16.

nian at least one health insurance policy option for an underwritten, risk adjusted price.[308] Estimates by the North Carolina Department of Insurance for 2005 state a 95 % to 99 % market share of BCBSNC for individual health insurance. In 2006 WellPath was the first large national player to start actively marketing individual health insurance in North Carolina. Due to the overall decline of group insurance it is likely that further insurance carriers will follow, aiming to expand in the growing individual market. However, this is again quite likely to be restricted to the few large national insurance companies.[309]

On the provider side a very similar trend can be observed. Over the past 10 years providers formed large organizations, bundling formerly independent hospitals into systems and buying independent physician practices. For example, in Charlotte there are two primary systems left, of which the larger one, Carolina Health Systems, owns most of the primary care physicians. There are only few urban areas left where a choice of different independent hospitals or hospital systems exists. In the rural areas the common problem is usually to have at least one specialist of each kind within an accessible distance. "So you go into most communities around the state and you have one group of surgeons, one group ENT, one group OB/GYN and you have five or six groups of primary care physicians – and people see county boundaries as if they were the Great Wall of China."[310] In the market of cross specialty PPOs the largest one was Raleigh-based, physician-owned Health Care Savings which had absorbed all competitors over the years. It merged with the hospital-led provider systems MedCost in 2006.[311] Again the Triangle stands out, as it is perceived to have a higher number of physicians as well as a choice of hospital systems and thus a more competitive environment.

6.3.2 Competition

Market concentration itself tells relatively little about competition. Thus, this section looks into competition of insurers and providers, again focusing on the perception of key stakeholders.

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[308] Cf. *Pollitz, Bangit et al.* 2006, pp. 12-13.

[309] *Atlantic Information Services* 2006, n.p. "(…) as the employer provided health insurance shrinks, (…) you really have to go out there, these people didn't just evaporate. (…)We have lots of group people who are still in groups, but the employers are saying I give you 500 dollars a month and go out and find your own coverage. It's not my job anymore. So what we are finding is that there is definitely a move to consumer based insurance, where the consumers are actually buying it for themselves, not necessarily through their employer." Interview.

[310] Interview. Similar in another interview: "Physicians have began to form larger groups, (…) for instance, orthopedic surgeons in Charlotte, there were two big groups, they came together in one. Everybody who wants to come to the town has to negotiate with this one big group. They have been spreading into other counties around - so now it is not only in Charlotte, but in multiple counties around them."

[311] Such a PPO would manage its own network and „rent it out" to insurance companies, which hold the financial pooling risk.

The insurance sector has to be divided up into the individual market, the small group market and the large group market. Until recently, the monopolistic position of BCBSNC in the individual market led to a "no-choice" situation for consumers and hence "virtually no competition".[312] For a long time there was also no threat that other competitors would enter this market as it was relatively small. Now, as the first large insurance companies enter this segment in North Carolina it is yet to be seen over the next few years, whether they are able to challenge the incumbent.

The small group market is similarly dominated by BCBSNC, although other companies operate in this area as well. The high turnover rates indicate that the large group market is more competitive. Price is the main factor relevant for companies purchasing health insurance on behalf of their employees. Nonetheless, BCBSNC seems to be able to maintain prices 5 % to 10 % higher than its competitors by relying on its name, its history and on the demand by consumers who are overall fairly satisfied with their products. A recurring theme is that BCBSNC plays in its own league, while the smaller insurers compete with each other.

Other parameters, like quality, are less relevant. One reason for this is that employers find it difficult to understand and assess quality. However, premium rates are all relatively similar in North Carolina, which makes aspects like service level, distance to agents, provider network density and access more important. But often employers are not aware of their leverage, for example, in issues such as which providers to include in the plan's network.

On the provider side, again, "there is a wide difference, the 'two Carolinas'".[313] Overall providers do – at times rather aggressively – compete for patients. With the influx of managed care and similar changes in the health system physician collegiality seems to be less present today than it was in the past. But in many, especially rural or certain highly concentrated urban areas, there is no competing provider in place. The certificate-of-need system makes it furthermore very difficult for new hospital providers to enter an existing market.[314]

In areas that do have different hospitals and physician groups, there definitely is a considerable amount of competition for patients; "in particular provider groups or hospitals want to be known as 'the' patient preferred place to go to for a particular service. In the last 10 years there has been more advertising, there has been more aggressive development of specialty services, a lot more competition for new MRIs, or new trauma designations, or new

[312] Interview.
[313] Interview.
[314] "Certificate-of-need laws prohibit the development of new healthcare facilities and services unless the provider can demonstrate to the satisfaction of state officials that the proposed facilities and services are needed." *Harris* 2003, p. 79.

specialty hospital designations, so that they have another star on their ad, so to speak, so that I think they are trying to attract people to their hospital or their group instead of another one."[315] Thus, they mainly compete in terms of services and quality but "in terms of 'I want to be the lowest cost system in town' – we have not seen it."[316] Prices and costs play virtually no role when providers compete for patients. On the contrary, it is usually impossible to obtain anything like a quote prior to receiving diagnostic or therapeutic services in a hospital. The fact that providers can maintain this scheme is especially surprising as patients are charged considerable co-pays. One reason for the lack of price competition between providers be the power balance between insurers and providers when contracts have to be negotiated.

6.3.3 Insurer-Provider Power Balance

There are several motives to consolidate and build larger groups, for example access to capital and supply purchasing power.[317] But the increasing power of the larger growing insurance carriers has been the main reason for consolidation on the provider side. Providers had realized that as individuals they had not any clout. "It was like physics, equal reactions. The payers have gotten larger and larger and as they have gotten larger and control more territory that stimulated the providers more and more to find a way to fight them. And it is all about the money."[318] Single doctors, especially, do not have a chance at all. After consolidation on both sides, in many cases, situations similar to a bilateral monopoly appear. A monopolistic provider network that has "the only show in town" on the one side versus BCBSNC with about 60 percent market share on the other side. As no party can do without the other one, standoffs are the result which occasionally led to a few month pro forma suspension of the contract. In most cases the question is, if one side can do without the other or not, and usually they cannot.[319] This seems to be especially critical for providers that state that, as soon as a particular insurer's patients make up more than 20 % of their business, they are captivated.

[315] Interview.
[316] Interview.
[317] Cf. *Robinson* 1998, p. 56.
[318] Interview. As *Ho* 2005, p. 2, observes, hospitals strategically invest in characteristics that increase their bargaining power.
[319] "Could I do business in Durham without Duke? No! They have all the hospitals in town. And (…) they have all the physicians in town. Literally 99 %. So, I cannot really live without those. If there was a solo practice in Durham county and we were at odds what the right fee is, then (…) [I might contract] because I want to have them in my network, but both parties can live without each other, if they reach an obstacle." Interview.

Although insurance companies have an interest in lower prices for powerful hospital providers and their related physician networks, a backward accounting system has evolved.[320] Today, by and large providers receive the largest share of their revenue out of government sources like Medicare and Medicaid, on which they have almost no direct influence. Thus, the private insurers are seen and used as some kind of collective residual claimant, to whom providers pass on the difference between expenditure and government revenue. But "[w]ith the exception of very large research hospitals and their related physician groups the health plans have all – in my observation – all of the power. They write the contract, they set the terms, and it's often provided in a take it or leave it manner."[321] Insurers on the other side are to a very large extent capable of passing the medical costs on to the consumer, as they have maintained the medical cost ratio on a fairly stable level even during periods in which prices for medical care have increased tremendously.[322]

6.3.4 Regulation

In such a highly concentrated market good regulation is obviously essential. The following thus tries to look at two different aspects. First, at competition law, which aims at maintaining a competitive marketplace and protecting consumers; second, how overall regulation of providers and insurers restricts their entrepreneurial freedom.[323]

Overall, competition law is indirectly empowering insurers, acting as consumers' agents, by being more lenient with them compared to the provider side.[324] This becomes obvious, if legislation like the Sherman Act, which exempts health insurance carriers from large portions of antitrust regulation, or a recent report on the role of competition law in the health sector, focusing in its recommendations solely on providers, are considered.[325]

In North Carolina the strong position of BCBSNC in certain market segments has caused some concern in the past. But attempts to apply competition law failed, mainly due to the organization's non-profit status. On the provider side a certificate-of-need system strictly regulates the concession of health care providers. This presents significant market entrance and exit barriers, as incumbents are largely protected against new startups.[326] Smaller providers, like physician groups, feel disadvantaged, as they are not allowed to bargain collec-

[320] See *Ho* 2005, p. 5, for an overview of different, theory-based bargaining models.
[321] Interview.
[322] Cf. *Robinson* 2004, pp. 18-20.
[323] It should be noted at this point that self insured plans are exempt from most state regulation and thus enjoy great freedom. The following focuses on not self insured plans.
[324] Cf. *Sage, Hyman and Greenberg* 2003, p. 38.
[325] See corresponding chapters in *Federal Trade Commission; Department of Justice* 2004.
[326] "We have certificate of need structure in our state that is really a franchising system, and by that franchising system the hospitals have great control, because they have more money, they have more power." Interview.

tively with insurers' payment issues. "[D]octor providers are limited by regulations more than other providers. More than hospitals. (…) there have been several well-publicized cases of provider groups who have been sanctioned by the federal trade commission for antitrust activity. (…) So, there are no really powerful physician groups battling against the health plans."[327] This means that PPOs can enter a contract on behalf of the affiliated physicians, but the fee schedule is not included. Using a "messenger model" each physician has to submit her fee schedule herself. Therefore, physician associations can address issues like costs or quality, but not level of payments.[328]

The Department of Insurance furthermore regulates the contracts between insurance carriers and providers. Thereby it foremost focuses on protecting the insurance-buying public. As managed care has become more and more sophisticated over the years, and new potential risk factors have emerged that might pose a threat to the continuity of or access to care, an array of laws has been passed since the early 1990s. In 2002, these were brought together to form the Patients Bill of Rights.[329] "This regulatory framework was crafted to ensure that managed care plans have systems to develop and maintain a network of providers sufficient to deliver covered services, that medical management procedures are developed and administered in accordance with minimum standards, so that coverage will not be denied in an arbitrary or capricious manner, and that insureds have a reasonable standardized process through which they can appeal insurer decisions."[330] This is complemented by several single issue laws focusing on specific aspects, like the mandate to cover a certain procedure. Furthermore, legislation is in place to regulate the insurer-provider relationship, ensuring, for example, prompt payment and unified provider credentialing. Thus, "managed care plans are subject to an extraordinary array of detailed regulation".[331]

In consequence, this means that insurance carriers have to be certified for each county in which they want to operate, and have to submit each type of insurer contract which they want to use to the Department of Insurance for prior approval.

However, insurance companies do not feel that these regulations restrict them in an excessive way or that it stifles competition. Decisions are still based on entrepreneurial insight,

[327] Interview.
[328] For an in-depth overview of antitrust issues with regard to IPAs and similar organizations see *Casalino* 2006, pp. 569-585.
[329] Cf. *Morales Burke* 2003, p. 37
[330] *Morales Burke* 2003, pp. 37-38. This comprises for example standards for provider credentialing, adequacy of networks, utilization review, appeal and grievance processes, quality assurance programs, and disclosure of certain information to costumers.
[331] *Morales Burke* 2003, p. 38.

rather than regulatory requirements.[332] This is similar on the provider side, although especially small providers seem to believe that certain restrictions of their freedom do lead to a situation in which "the table is not level."[333]

Summarizing, this means that there is legislation in place to maintain a competitive market place. At this stage it remains to be seen, if this legislation really supports its goal, especially considering its health sector specific exemptions. This issue requires further investigation. Nonetheless it can be stated that, although insurers and providers are subject to comprehensive regulation, they are to a large extent capable of designing and implementing strategies that they expect to be in their best interest.

6.4 Insurer-provider Relationships in North Carolina

6.4.1 General Assumptions

The preceding chapter has set the scene in which both players act. Before having a closer look at the parameters defining incentive payments and organizational form, it has to be evaluated, if the insurer-provider relationship is one of a principal and an agent as assumed in chapter 4.1.

On the macro level, regulation, like through competition laws, gives more freedom to insurers, which act as purchasers, rather than to providers, which sell services.[334] Besides the role of purchasing a service, the initiative to offer a contract is also a characteristic typical for a principal. In North Carolina it indeed is the case that, with few exceptions, insurers offer providers a contract, often on a take it or leave it basis.[335] Furthermore, the state's regulatory entities see the insurer as the entity that has to ensure adequate provider behavior: "typically the carrier has responsibility for its providers. (…) So we would look to the carrier to enforce compliance, to resolve any conflict that they may have. (…) The carrier does have obligations under our rules, our laws, that they have to monitor and oversee the provider activities and for issues that may not be clearly defined in their contract form they would have opportunity typically annually to address those."[336] Considering all this there is sound

[332] "We surely have some constraints in the way we either underwrite or the way we set up our benefit structure – does this govern U.S. to some extent? It sort of does, but there are six or seven of U.S. who are still playing the game under the same constraints, so, while it may limit some of the things you can do, it didn't necessarily by itself stifle competition, because it just defined the parameters under which we compete." Interview.

[333] Interview.

[334] Cf. *Sage, Hyman and Greenberg* 2003, p. 38; also see chapter 6.3.4.

[335] Cave: Due to the rare appearance of new players on either side the phase of initial offerings is largely over and contract renewals with adaptations are more common. Larger networks or hospitals sometimes develop their own contracts, but not for larger insurers.

[336] Interview.

evidence that in North Carolina insurance companies have the more proactive role of a principal and providers act as their agents.

Furthermore, the interviewees established that in spite of significant regulation the players' strategic decisions and measures are based on their entrepreneurial insight.[337] This means that there are no external forces that would prohibit them from considering transaction costs as a decisive parameter in their deliberations on how to structure their business relationships.

Having thus sketched out the scene in which both players act, as well as how the relationship between the two of them is setup, the following sections focus on the parameters that are assumed to define payment method and organizational form.

6.4.2 Peculiarity and Relevance of Parameters

6.4.2.1 Measurability and Information Asymmetry

Like all other parameters, measurability and information asymmetry are not truly independent factors, but are to a large extent determined through the organizational form that defines the insurer-provider relationship as well as the incentive compatibility measures that are in place. Acknowledging these interdependencies, the following sections on parameters try to single out aspects that are not, or only to a limited extent, specific to or an effect of a specific setup of the insurer-provider relationship.

Insurers and providers recognize that there is information asymmetry between the two of them. Similar to individual patients, purchasers have difficulties in assessing a provider's quality, especially prior to entering a contractual relationship. Furthermore, the large number of aspects that feed into the quality vector, and the difficulty to assess these appropriately, are important concerns. Although claims data is relatively easy to obtain, it only shows a part of the picture. To be able to evaluate performance in a meaningful way significant efforts have to be made which are likely to be expensive, no matter whether ex post case note audits are performed or ex ante certification is conducted.[338] Certain relevant background information on a specific provider or her community simply are not recorded on paper. Consequently, the larger an organization is, the more difficult it becomes to obtain such personal knowledge.[339] Even for physicians it is difficult to assess their own performance and to identify problems that do require attention. To do this, a certain level of infrastructure to collect, analyze and compare data is required. Generally, at this time no party thinks

[337] Cf. chapter 6.3.4.

[338] On the same token potential savings have to be considered, which will be taken into account at a later stage.

[339] "[B]ut we were just too big to really get that personal relationship," Interview.

that it is currently achievable to measure true outcomes as a primary indicator. Therefore process and input criteria will play a key role in the near future. In spite of the fact that there is significant political pressure to move towards pay-for-performance, some insurers hesitate as they are worried to waste money by starting such a reimbursement system without being able to handle the above mentioned problems effectively.

Summarizing, it can be stated that providers and insurers recognize significant difficulties in measuring several dimensions of health care services. Thus, both sides portray a very differentiated picture, taking into account various problems and costs that arise when complex (quality-) questions have to be assessed and information has to be passed on. What worries them most is not the difficulty of measuring performance or outcomes itself, but the problems arising when a reimbursement system is implemented which would require adequate, outcome based performance measures.

6.4.2.2 Risk and Risk Attitudes

Measurability problems and information asymmetry present the reason why a more sophisticated payment system is needed to achieve incentive compatibility. Risk and risk attitudes, however, are relevant for the concrete design of the payment system, especially taking into account the trade-off between risk premium and incentive intensity, as well as quality and costs.

Looking at risk itself the conducted interviews did not present any evidence that risk arising from random incidents of illness or demographic changes pose a considerable concern to any of the players. However, especially small providers with limited bargaining power and, in this respect, relatively unfavorable regulation do feel at risk as they cannot control their income; the reason for this being that they can neither determine what they charge nor which patients they see. In consequence, a change of the fee schedule of a large public program like Medicare can pose a significant problem, as their possibilities to shift costs are limited. So, especially ambulatory care providers try to diversify the portfolio of their services, a strategy that can hardly be performed by an individual physician, who is neither member of a larger group practice nor of a network.

However, networks and larger hospitals are also to a certain extent at risk. Especially with regard to expensive high-tech procedures, like in some cardiovascular centers, small number changes in the supply of patients can have a significant impact on the financial situation. Vertical integration with primary care providers, as performed by all big hospital systems in North Carolina, can help to reduce this uncertainty.

With regard to third party payers' interference in their business providers not surprisingly express reservations. These reservations, however, are at least to some extent caused by the fear of being excluded from an essential network because of the higher costs caused through a sicker population or through higher quality of care, which they deliver.

On the insurance side, it was mentioned that BCBSNC, although currently very big in this market, has no means to expand into other geographic areas, and thus lacks the possibility to balance market specific risks.[340]

With regard to risk and risk attitudes it can be summarized that all players are exposed to some kind of risk and that the capability of risk diversification indeed is an important aspect besides the pure size of an organization. Providers try to reduce this uncertainty by building networks and vertically integrated delivery systems that not only spread risk, but also give more control over patient referrals, and increase bargaining power. Thus, risk attitudes seem to be a relevant factor for the design of incentive compatible payment methods.

6.4.2.3 Objective Functions

Besides risk and risk attitudes the different players' objective functions play a crucial role in designing incentive compatible payment systems. According to perceptions obtained in interviews, providers' objective functions are determined by the bottom line "(…) no money, no mission."[341] All types of providers are restricted by what they do through this factor. Besides that, there is agreement that physicians do want to care for their patients, hence in economic terms, it is in the physicians' best interest to increase their utility by taking care of patients. However, differences can be observed between specialties, for example comparing extremely patient-focused pediatricians with more technical oriented orthopedists. The fact that money nonetheless matters can be illustrated through multiple examples in North Carolina. For example, dentists refused to see children on Medicaid because they believed reimbursement was too low. Other important parameters for physicians are aspects like working time and lifestyle which seem to become increasingly more important. This could indicate that at least some efforts to reduce costs, for example working overtime to see more patients or to spend more time with a patient to identify not only the best, but also the most cost effective option, are expensive due to significant opportunity costs. All of this is in accordance with the providers' objective function which was constructed based on theoretical considerations in chapter 3.3.3.2.

[340] BCBS insurance companies do not compete against each other but stay within their historic boundaries. *Robinson* 2004, pp. 15-17.

[341] Interview.

Financial success is definitely a key factor on the insurance companies' side. Although some players like BCBSNC have a considerable and well publicized track record of contributing to charity care and of engaging in initiatives to improve the situation of the uninsured or to achieve other societal goals, others do not see this as a key objective of their undertaking. The latter ones mainly focus on their function to facilitate payments and bear the insurance risk. High customer turnover rates, which make it difficult to capture benefits like long-term expenditure savings, may be one reason for this focus. Considering additionally that the limited role of competitive parameters, like quality compared to price and costs (cf. chapter 6.3.2), the quality parameter of the insurers' objective function in chapter 3.3.3.2 seem to have a much weaker foundation than the cost aspect.

6.4.2.4 Specificity

In New Institutional Economics literature specificity of investments is regarded as the most important parameter with regard to choice of the organizational form.[342] Therefore, the interview outline covers this aspect in-depth.

On the provider side, specificity of investments is not deemed to be of a high degree.[343] Neither investment into specific sites nor into physical assets seems to be of importance. However, "[e]ach managed care company has its own forms, policies, procedures, phone numbers for certification and approval, and benefit restrictions. There has been little attempt in North Carolina at standardization and simplification. Consequently, physician office staffing has had to increase and *specialize* to handle the workload".[344] This would suggest that there exists at least some insurer-specific information technology and specialization of workforce and thus human asset specificity. However, while in the interviews this has been confirmed as a source of great administrative burden and high costs, it was not deemed to be relation-specific to an extent, that it would influence providers that have to decide if the contractual relationship with a carrier should be continued or not. The standardization of claims processing through HIPAA legislation also helped to reduce this specificity to a certain extent.

Considering that providers are highly dependent on insurers funneling patients through their practices and hospitals (cf. chapter 6.3.3), dedicated assets seem to play a significant role. Statements like "[o]nce it goes over about 20 % you are hooked" suggest that providers do

[342] Cf. *Williamson* 1985, p. 52 and p. 56.

[343] "I don't think I would worry about that." Interview.

[344] *Greene* 2003, p. 25, emphasis added. Interviewees confirmed this problem: "One of the interesting comments on that would be that, if you look at different insurance companies, we all make investments in the same things and do them all differently. What I mean is: We all have our clinical guidelines. A physician has to know eight different clinical guidelines in order to work with eight different insurance companies." Interview.

have a de facto dedicated capacity available that they cannot easily and quickly readjust.[345] Although providers do spend significant amounts of money on advertising and branding, these investments are not directed towards a specific insurer. One aspect that could count towards intangibles or brand name assets is the fact that carriers have an interest in entertaining valued partners, which gives reputation a certain weight. But as reputation is not necessarily relation specific, this category of relational specificity is not very strong either.

On the insurer side the feedback is similar. Although there are some investments that are specific to geographic regions, these are not tied to a specific provider and thus do not present site specific investments for a relationship. Usually neither physical nor human assets are dedicated to a specific provider, and case they are, they are easily re-deployable to another one. The reason being primarily that there "are very few situations, where there is only one of something."[346] This means that there are either other providers or provider groups of the same specialty, or other hospitals that an insurance company has contracts with. Furthermore, there are no significant differences between different specialties.[347] For the same reasons it is unlikely that an insurance carrier has significant amounts of assets dedicated to a specific provider that are problematic to redeploy, if the contract is cancelled.

As for intangible and brand name assets the picture is similar. Although insurance carriers advertise certain provider initiatives, like a quality initiative by BCBSNC for bariatric surgery, or reference their extensive provider network, they do not tend to invest in provider specific public relations campaigns.[348]

Summarizing, it can be stated that providers perform relation-specific investments on a low to modest level. If insurers face any such investments at all, they are probably even lower. Consequently, no party sees a need for organizational measures to avoid transaction costs that might arise in the context of their contractual relationship.

6.4.2.5 Uncertainty

The second of the three parameters that influence the choice of organizational form is uncertainty. It refers to disturbances of the relationship, requiring adaptation, monitoring or renegotiation.[349] Considering external disturbances first, potential changes in demand could

[345] Interview.
[346] Interview.
[347] "I think of the investments as generalizable, across all of our contractual relationships. Obviously some of them are specific to hospitals, because of different payment methodologies in hospitals, but by and large pretty generalizable across the physicians and ancillary provider community." Interview. BCBSNC can serve as an example: "BCBSNC's networks include every hospital in the Triangle and almost all in the state of North Carolina." *BCBSNC* 2007, n.p. The health plan WellPath Select cooperates with 64 hospitals and more than 11,000 physicians; cf. *WellPath Select* 2007, n.p.
[348] Cf. *BCBSNC* 2007, n.p., and *WellPath Select* 2007, n.p.
[349] Cf. chapter 2.3.4.2.

be a trigger for renegotiations. However, none of the interviewees mentioned this as a relevant issue to them. Another source of uncertainty is unexpected decisions by the legislature.[350] In North Carolina this has not been a significant problem, at least over the past few years. For example, there has been a moratorium on mandated benefits what prevented significant changes in this respect.[351] Furthermore, one interviewed insurance carrier stated that insurers usually have broad coverage so that newly mandated benefits frequently do not require any changes at all. Besides that, no other external triggers for uncertainty could be identified.

With regard to internal disturbances opportunism is the key term describing potential misbehavior that puts pressure on a contractual relationship. However, a first source of unintended, "honest" disagreement arises when the two contractual parties have a different understanding of what the contract actually means. Due to an increased professionalism on both sides, this usually does not pose a problem anymore.[352] None of the interviewees claimed that opportunistic behavior would be a big problem. "(…) I would say that my experience is that the vast, vast majority of physicians try to play by the rules."[353] Within the rules providers try to go to the limits of what is acceptable to the insurer, but fraudulent behavior is the exception. However, insurers also estimate that the actual level of procedures and tests is 15 % or 20 % higher than it might have to be. This does not seem to be of extreme concern for the payers. They prefer to focus on few individual outliers that are likely to bend the rules. Although none of the interviewees did want to classify it as such, noncompliance with treatment standards is a case of opportunistic behavior, as these efforts, which would be in the best interest of patient and third party payer and would be in the spirit of the contract, are not made.

Another form of uncertainty is reflected in cases in which insurers make amendments to their benefit catalogues and physicians fail to recognize this. But usually the patient, not the provider, has to endure the consequences. Thus, if a patient receives treatment that is not covered by her plan anymore, she has to pay the bill out of pocket. One period of time, when some kind of opportunistic behavior of primary care physicians could be observed,

[350] This is especially noteworthy as the initial phase of offerings is largely over and contract renewals are the rule rather than the exception.

[351] This was different in the past, as regulatory uncertainty was one of the problems faced by Kaiser Permanente's attempt to start a staff model HMO in North Carolina around the late 1980s and early 1990s. Cf. *Gitterman, Weiner et al.* 2003, pp. 574-576.

[352] "[Insurers] had an unfair advantage to some degree. That's all gone. So, what you got now: very professional, well educated people on both sides of the fence and there is virtually nothing in the contract any more that falls through the cracks. I wouldn't say nothing, but it's gotten to be – when both parties sign of on this – it's 99 % what you expected." Interview.

[353] Interview.

was, when North Carolinian insurers attempted capitation payment. The physicians quickly and significantly increased their referral rates to specialists, clearly a notion which was not intended, when these contracts were established.[354] No other forms of exploiting the contractual relationship were raised in the interviews or could be encountered in North Carolina specific literature.

Summarizing, it can be stated that there is evidence for opportunistic behavior, but usually in a way that stays within the limits of what North Carolinian insurers deem to be tolerable. They tend to focus on blunt fraud, only.

6.4.2.6 Frequency

The more frequent transactions of one type are conducted by the purchasing entity, the better the costs for any kind of governance system can be spread out.[355] Thus, several arguments that have already been mentioned above become relevant again. Insurers do have a large number of contracts with providers. Furthermore, there is rarely a unique case, usually there are several of one kind.[356] Governance methods that were named are, for example, benchmarking and peer review panels. Consequently, as soon as the infrastructure is in place, such institutions can handle a relatively large number of cases at low variable costs. This obviously makes it easier and less costly for insurance companies to establish some kind of governance body.

6.4.3 Preliminary Assessment

After having established that the insurer and provider are in a principal-agent relationship in chapter 4.1, the identified parameters were assessed under the lens of the North Carolinian health care market. Interviewees are aware of the difficulties that arise with measuring health services and the resulting information asymmetry. Nonetheless, currently this seems to be acceptable for insurers as well as for providers, as long as payment methods are not linked to these factors. With regard to their risk attitudes it seems as if smaller and/or non-diversified players are very exposed to risk and consequently have formed larger entities over the past decades. These can be considered risk neutral, whereas individual physicians or physicians networks which cannot collectively bargain with regard to payments are likely to remain risk averse. Various statements made by the interviewees indicate that the variables included in the objective function of providers are a fair representation of their deci-

[354] "They really became triage officers. They really almost minimized the amount of they saw the patients. So capitation didn't particularly work well in NC." Interview.
[355] Cf. chapter 3.3.4.4.
[356] See footnotes 346 and 347.

sion criteria. For insurers, the quality aspect seems to play a much smaller role than the cost aspect.

Specificity, the first of the three parameters that determine transaction costs of the different organizational forms, is of a moderate degree and mainly caused by dedicated assets on the provider side. Insurers do not handle investments to any significant extent. Both parties are aware of potential internal and external disturbances that can result in uncertainty, but over the past few years fairly stable environment and providers, which – as long as not given too much freedom – play pretty much by the rules, make this a minor problem. Thus, at least from the insurers' point of view, opportunistic behavior – set aside rare incidents of fraud – is not a problem. Finally, the large number of contracts a single insurance carrier holds, and thus a high frequency of transactions, makes it relatively cheap to install a governance mechanism.

After having covered the various parameters in this section, the following chapter presents the manifestation of payment methods and organizational form in a purely descriptive manner.

6.4.4 Verifying or Falsifying Predictions

6.4.4.1 Incentive Compatibility

Originally, in the 1970s and 1980s, fee-for-service was the standard and providers filed their fees with the insurance companies. Since the start of North Carolina's first HMO in 1984, payment systems went almost through a cycle. In that year, Kaiser Permanente tried to establish the state's first and only staff model HMO. Salaried physicians worked for the carrier, which received a per capita payment for each enrollee. This remained the only true prepaid group practice. Competitors who offered HMO plans also paid providers on a capitation basis but never in such a mutually exclusive manner. After 14 years of operation, Kaiser Permanente's North Carolina branch had to file for bankruptcy. Adverse selection effects and resistance from the provider side were only two of several reasons why this endeavor failed.[357] At the end of the 1990s, by and large the boom time of capitation was over. The number of insurers offering capitation plans dropped from the peak of 24 in 1997 to only 8 that were still actively marketing in 2003.[358] In North Carolina insurance carriers are at large back to fee-for-service payments; in the few cases, in which capitation is still used,

[357] *Gitterman, Weiner et al.* 2003 give insight into the stages of Kaiser Permanente's presence in North Carolina and the different reasons for its struggle.

[358] Cf. *Greene* 2003, p. 22.

this is a relict without significant role.[359] The way fee-for-service is conducted has changed significantly. Providers usually do not file *their* fees any more but insurance companies either apply a proprietary fee-schedule or one that is a variation of a public program's system.[360] Hospital reimbursement "was changed from charge-based reimbursement to a variety of prospective payment methods: per diems, case rates and diagnostic related group (DRG) fixed prices."[361]

What does this mean in terms of the developed reimbursement model? The typical fee schedule reimburses individual procedures that were performed. Therefore fee-for-service payments are much more closely related to actual costs than a basic residual component G (which in this case equals zero), as implemented in the payment function of chapter 4.2.1, and thus insulate a physician against financial risk.[362]

Depending on the extent to which truly prospective reimbursement methods are used for hospitals, the basic fee component and thus the financial risk plays a more important role in in-patient care. However, it remains open at this point, to what extent this actually describes the incentives correctly. One interviewee noted: "Really what it is, it is a work backwards methodology these days. If I am a hospital system and I need X million dollars. I know what the government is gonna pay me within some certainty. I can figure out what my current group of insurance companies is paying me. And if I need them to pay me 10 % more then, basically, it is pretty simple from their standpoint – on the new effective date, which is normally January, I got to get 10 % more or I cannot fund the projects that I have going on."[363]

Insurers also acknowledge that it is very difficult to obtain favorable outcomes on a fee-for-service basis as the incentives are piecework.[364] Why have insurers returned to this method? As one interviewee tried to explain it, highlighting the importance of organizational structures in the context of more sophisticated payment methods: "You have to run into an organization that has infrastructure that can actually achieve things. There is very few of those opportunities."

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[359] "[W]e almost sell no HMO anymore, nor do any of our competitors. The HMO was all but dead. What you find is that all of U.S. have a bunch of legacy HMO clients. But realistically all we sell are PPO and POS and, if you did another study on the difference, you wouldn't find a whole lot." Interview.

[360] Cf. *Greene* 2003, p. 24.

[361] *Greene* 2003, p. 24.

[362] See *CMS* 2007 website for a typical physician-fee schedule. In a case in which G = 0 the cost share variable γ obviously has to be larger than 1 if a profit margin is built in.

[363] The implications of these bargaining power issues are discussed in chapter 6.3.3. Also see the paper of *Ho* 2005 on these issues.

[364] *Stone* 1997, n.p.

6.4.4.2 Organizational Form

Whereas the closing quote of the preceding chapter points out the importance of professionally structured provider organizations, this chapter looks into the relationship between insurers and providers. Therefore again the three generic modes – market, hierarchy and hybrid – are considered.

As elaborated in chapter 4.3.2, it is practically impossible to arrange spot market contracting by an insurance carrier. The insurance setup that is closest to the market mode (but is inconsistent with the assumption of the insurer as direct contractor) is some form of indemnity insurance allowing the consumer to contract "on behalf" of the insurance carrier with any provider. There are some indemnity plans left in North Carolina; the largest one is part of the State Health Plan. However, they play a minor role and are fairly unpopular with employers, as their only way to control costs are patient cost sharing arrangements.

A fully integrated hierarchy would imply that providers are actually integral part of the insurance company, a feature which can be found in so called Health Maintenance Organizations. But as the North Carolina Department of Insurance states in one of its reports: "Although some HMOs employ their own physicians and medical facilities, none of the HMOs presently operating in North Carolina do so."[365] North Carolina is no exception in that in almost no area on the east coast staff model HMOs have prevailed.[366] The only true staff model HMO that has ever attempted to enter the North Carolinian market is Kaiser Permanente. However, during its 14 years of presence it never owned a hospital and also had to externally contract with specialists.[367] Furthermore, it seems quite likely that the transaction costs of recruiting physicians in the first place were very high, especially as the medical community vigorously opposed and defamed this model. With labels like "physicians-in-a-box" and perceptions that the organization would attract only inept physicians, the HMO had a very negative image.[368] In general, interviewees observed that physicians do have a very strong aversion against any direct control, which makes it extremely difficult to force them in any strict hierarchical organization that is not led by their peers.[369]

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[365] *NCDOI* 2002, p. 2.

[366] "Kaiser was here – and Kaiser managed to loose a hundred million dollars before they left NC. (…) Other then Washington DC - they were not really successful east of the Mississippi, any place where they don't own hospitals they got very difficult time." Interview.

[367] Cf. *Gitterman, Weiner et al.* 2003, p. 572 and p. 584.

[368] Cf. *Gitterman, Weiner et al.* 2003, p. 580.

[369] As one interview participant noted: "I yet haven't figured out how to control physicians. As a bunch, physicians are mavericks. The way they are taught to think, is different. (…) It's just an interesting artifact of doctors. So I don't think control has ever worked. I think you have to figure out how to work with them." Interview.

Due to their lack of presence in North Carolina, little can be said about other implications of the market and the hierarchy mode, especially as the interviews focused on the current state. But all over the nation, including North Carolina, "[f]inally, a variety of hybrid arrangements has evolved."[370]

With regard to hybrids, two different approaches can be observed. Some insurers (usually smaller or self-insured companies) contract with provider groups or networks, whereas others may use intermediaries for negotiations, but contract directly with the individual physician and thus maintain their own network. In the first case this means that two or even three layers of organizations are built in. For example, a large provider network comprises several, lower level IPA which facilitate issues on a community level. However, management tools used by larger provider networks are very similar or are even identical with those used by insurance companies, as outlined in the following paragraphs.[371]

Usually contracts run for one year or occasionally for two years. Generally, these contracts are standard forms without significant differences, even across specialties. In a typical contract, parties agree on general terms with regard to quality and costs. Operational details, like benefit catalogue or utilization review, are usually added in the form of a provider manual. Thus, the insurer can make changes to the benefit catalogue without having to file a new contract with the Department of Insurance, which improves adaptation efficiency. As long as providers are given sufficient notice, insurers can make most of these changes unilaterally. Furthermore, there usually is a multi-stage control process in place. General information technology is used to screen claims data for outliers. If a provider or a case seems suspicious, in the contract the insurer reserves the right to conduct audits of cases and files. If the case is more serious, organizations have peer review panels to evaluate the facts. As last resorts all contracts include the option to unilaterally terminate the contract before its regular end. In this case, it is beneficial to have contracted directly with individual providers, rather than through a network.

By applying screening mechanisms insurers try to focus on serious problems: "There are two different theories of how to look at that. One is, you can do the same thing to everyone, and annoy them all, and we have done that in the past, we subjected all of them to a gatekeeper. Rather than targeting where the problems actually existed. What we do, we try to focus on the top areas of concern. We go through in depth analysis everywhere, what's going on with our medical costs, what's changed, what procedures are driving it, where are

[370] *Fox* 2001, pp. 3-4.

[371] Thus, although in the following only the term insurer is used to avoid any confusion, the facts also apply to most network organizations that contract with individual physicians.

problems popping up. Do we have a hospital out there that is charging U.S. three times as much for a hip implant as everybody else is. And then we focus on the problems. What we try to do is to leave alone the people who are not a problem. Who are not popping up in the financial analysis or quality analysis. And just focus on the ones who are the minority, frankly."[372]

Besides these ex post controls, plans use ex ante utilization measures. Frequently, pre-certification of certain services are required, which means that providers have to call and check with the insurance company before conducting the treatment. Otherwise the patient would be at risk to forgo coverage for this treatment.

6.4.5 Preliminary Assessment

Summarizing, it can be said that fee-for-service payment is the predominant payment method for physician. Capitation or residual payment components do not play a significant role. Due to limited information the situation for hospitals cannot be finally assessed at this point. However, any hospital payment system seems to be dominated by the bargaining processes which are characterized by high market concentration on both sides.

Neither spot market contracting nor hierarchy plays a role in insurer-provider relationships in North Carolina. Hybrids are the way these contracts are organized, and their actual implementation fits well with the theory-based definition. Contracts are relational, which means that they agree on general terms and assign decision rights, which are supported with some bureaucracy to solve any conflicts, usually to the insurer,. Peer review and the use of annexes are typical features as outlined in chapter 2.3.4.3 and contribute to adaptation efficiency. The time frame of one year may seem short on the first glance, but considering the high inflation in the health sector and other potential disturbances this still qualifies as a long term contract. The powerful position of the insurance carriers with the right to enforce unilateral decisions is noteworthy, as it definitely has some notions of a hierarchy.

After having looked at North Carolina's peculiar parameters, incentive compatibility and organizational forms, the next chapter evaluates the outcomes, which can be observed in this very specific setting. The focus is thereby primarily on outcomes resulting from the insurer-provider relationship, but other related factors like competitive forces are included as well.

[372] Interview.

6.5 General Outcomes

6.5.1 Access

Of the three parameters chosen to evaluate access, availability of services was the least mentioned by all interviewees. All specialties and types of facilities seem to be available in sufficient numbers – if consumers can afford it. However, the ability to pay does ration access to healthcare in the U.S.[373] Besides the fact that payments which are considered too low by providers reduce the availability of services, no links between a specific payment method and access could be identified. Thus, the following focuses on effects of the contracting mode between insurers and providers.

Accessibility, introducing the geographic dimension, is closely related to contracting. Having left behind a period in which HMO style models restricted choice of providers significantly, today the selective long term contracting still channels patients to certain contracted providers. However, interviewees unanimously agree that due to consumer demand insurers are now forced to entertain widespread physician networks. "The market said, the definition of access is, 'my doctor is in there'"[374] and "[s]o competition to get doctors into the network is really the only thing that helps consumers"[375] are two typical remarks.[376] They furthermore acknowledge that geographic closeness is crucial. However, that insurers are aware of the importance of easy access does not mean that they try to achieve this in all geographic areas. Many rural areas in North Carolina are simply not profitable enough, therefore providers who may be licensed to do business in a certain county do not have a network in these areas.[377] Thus, the power of insurers to contract significantly improves accessibility for consumer in densely populated urban areas, but largely fails in rural and poorer parts of the state. In the latter ones, providers rely heavily on income through public programs like Medicaid, and consumers receive services through publicly financed rural health clinics and similar facilities. Furthermore, insurance coverage that is available in these regions is less likely to embrace significant care management.

The effects of hybrid mode insurer-provider contracting on affordability are mixed. On the one side, people who do have coverage benefit from discounted prices. However, the ability of insurers to work with providers on prices is again restricted to the more competitive, urban areas. On the other side, there are no significant differences between carriers with regard to provider contracting. Consequently, the only way for insurance companies to diffe-

[373] Cf. *Reinhardt* 1993, p. 6.
[374] Interview.
[375] Interview.
[376] Also see *Ho* 2005, p. 38, who emphasizes consumers' strong preference for choice.
[377] "Just like putting an IKEA store in rural NC, it wouldn't make lots of money." Interview.

rentiate premium prices is through varying co-pays and deductibles. Such plans usually do not help low income people, as the out-of-pocket payments are beyond what they can afford.[378] Another problem with regard to affordability is the consumers' lack of ability to find the cheapest adequate option. One reason for this is the complexity of health insurance packages per se. Another reason is that providers bar insurers from communicating the prices they charge. So there are no means for consumers to shop around based on price information at all, or to argue an inaccurate bill afterwards, a fact which insurer-provider contracting seems to be incapable of overcoming.[379] Problems also arise, when patients mistakenly see physicians who are not part of the network, and then face high out-of-pocket fees.[380] Generally spoken, affordability of insurance premiums is one of the key consumer struggles patient advocates are confronted with.

6.5.2 Costs

With regard to costs it is difficult to separate the effects of the commonly used fee-for-services payment method, the backward accounting approach, and pure organizational features. The lack of a residual component in the payment system takes away an important incentive for physicians to hold down costs. When talking about cost control most interviewees refer to the introduction of large scale utilization review and similar measures, which led to significant savings – one-time savings as critics say. The measures could not avoid that health care costs grew again steadily over the past few years, frequently featuring double digit figures.[381] As one participant stated: "If you looked at our costs per day in a hospital, today versus six years ago, it's doubled. In some markets, more than doubled."[382] Independent of the actual contractual setup, insurers were able to channel through providers' price hikes, thereby maintaining constant medical cost ratios and solid profit margins, and thus not facing the need to put providers under significant financial pressure.[383] Fur-

[378] Although not directly related to insurer-provider contracting the following quote with regard to risk adjusted premiums illustrates another interesting aspect: "Would probably be surprised at how many people, whose premium might be 1500 dollars a month, actually buy it. They do! You can pretty much guarantee that these people at least think that they have a potential to spend more. They are sick." Interview.

[379] The same applies if ambulatory care is obtained in emergency rooms – the prime source of medical care for many low income populations. Patient advocacy groups tried to force hospitals to give patients a quote before treating them but were not successful. "One of the biggest problems is that, because the pricing is secret until after the visit is complete, it is next to impossible for a consumer to challenge, disagree with, argue about the bill. (…)That puts the consumer in an impossible position to argue afterwards that it shouldn't be worth whatever they are billing." Interview. "Healthcare is the only thing that we purchase in the U.S., where we don't know the price beforehand." Interview.

[380] Cf. *Morales Burke* 2003, p. 38.

[381] Cf. *Greene* 2003, pp. 26-27.

[382] Interview.

[383] Cf. *Robinson* 2004, p. 20-21.

thermore, interviewees observed that providers compete for consumers and thus ultimately for insurer contracts mainly through quality and brand building advertising. "In terms of 'I want to be the lowest cost system in town' – we have not seen it."[384] Thus, applying a benefit catalogue which excludes particularly expensive procedures seems to be the core of cost saving measures in place. Especially as insurers do not seem to be willing to go after potential savings that are frankly possible but might cause some opposition from the provider side. They rather focus on some high cost areas and start single initiatives. Some argue that these initiatives are public relations oriented rather than serious efforts to cut costs or improve quality. No interviewee indicated that transaction cost efficiency of the hybrid structure had any significant effects.[385]

Summarizing, costs seem to rise steadily in North Carolina neither constrained through a payment system, nor through organizational form.

Another factor is regulation that ensures certain quality standards for consumers. "However, to the extent that the *cost* of these protections renders insurance unaffordable for some, protecting the public good is less straightforward, since it creates winners (those who remain insured and enjoy these new protections, whether or not they ever directly benefit from them) and losers (those who can no longer afford insurance)."[386] In consequence, the next chapter elaborates on the extent to which the North Carolina typical insurer-provider relationship affects the quality aspect.

6.5.3 Quality

Considering the advantages of ex ante measures for quality improvement the lack of incentivizing payment systems does not promise best quality effects.[387] At least to date, quality related incentives are restricted to certain projects, and even there they are mainly linked to input measures like the adherence to certain guidelines.

One interviewee commented: "From the quality perspective our networks are almost identical between U.S., BCBS, Signa, Aetna, United, you know, going down the list, whoever is still left. So it is not like I am aligning with a different set of providers, we are working together to build a different quality system, because we are not. (…) We really don't have a lot of competition to build better quality delivery systems. We really – as an industry –

[384] Interview.

[385] Caveat: Retrospectively the interview outline was probably not ideal to capture this specific aspect. The statement thus represents a summary of various remarks that were made by interviewees.

[386] *Morales Burke* 2003, p. 38; emphasis added.

[387] Acknowledging that in the model used in chapter 4.2.1 a positive relation of quality with provider's utility function was assumed a complete cost sharing increases quality. However, as neither C(q) nor V(q) are fully specified no conclusions can be made to which extent this happens. It may or may not be that quality measures even exceeds the efficient level.

leave that up to the providers themselves to do that. We do a little back end monitoring, we look for bad outcomes and things of that nature, but it's fairly rudimentary."[388] Although this is probably a strong indication that the effect of insurer-provider contracting on quality is limited, it does not necessarily mean that there is no impact at all. When insurers file a new contract with the Department of Insurance, they often at least claim that these changes will benefit the patient.[389] Through the strong position they ensure themselves in the way the contracts are set up, they also have the means to intervene, if providers do not adhere to certain quality expectations. This obviously would be much more difficult, if no hybrid typical support structure was in place. And as they do write quality into general terms in their contracts and in a more detailed manner into the provider manuals, this has the potential to spread best practices over the provider community.[390] Furthermore, there are some quality based initiatives which include provider participation in agreeing on quality levels and incentive pay for providers complying with certain standards. However, the drive for such initiatives also often comes out of public programs like Medicaid.

There may be another advantage, if insurers were responsible for quality on a large scale as it focuses the public awareness. In this context, one interviewee stated that most changes are driven by entrepreneurial insight rather than regulations. And "[s]ome of these entrepreneurial insights occurred on the front page of the News & Observer."[391] As one interview participant pointed out, insurers prefer to focus on quality improvements with regard to prevention, rather than with regard to actual case management, as this causes less irritation with providers.[392]

The comprehensiveness of the benefit catalogue may also be a quality indicator. In this respect insurers in North Carolina seem to cover by and large a satisfying spectrum which is also ensured by state regulation.[393]

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[388] Interview.

[389] "[W]e have seen changes that have been submitted to U.S. that say they have done these kinds of analyses and, if they go a certain direction, service will be better, costs will be controlled more, but yet the consumer is not adversely affected by. If anything, they are receiving better care, better service." Interview.

[390] As mentioned above this is no competition parameter that insurers use and it remains unclear, if some kind of competitive, quality based selection process is in place. Although it does not appear like this to the author, some attempts by insurers to reduce the number of different guidelines in use might give an opportunity for this.

[391] Interview. The News & Observer is a North Carolinian newspaper.

[392] This trend was also observed by *Greene* 2003, p. 24: "[Q]uestioning physician decisions on what care to give, was more difficult. Disease management programs, in which managed care companies partner with patient and physician to help manage cost effective, appropriate care, have not grown as rapidly as was hoped. While such programs were once prevalent for conditions like diabetes, asthma, and high-risk pregnancy, few others have been developed on a widespread basis."

[393] Cf. *Morales Burke* 2003, pp. 37-38.

A negative aspect of insurer-provider contracting on the quality of care that has been mentioned several times is the disruption of care in cases when consumers want to switch insurance carriers, but their physician only has a contract with the old one.

In conclusion, one might say that, besides the continuity aspect, quality of care is not negatively influenced by the prevalent type of insurer-provider contracting, rather that it usually is at least as good as in other potential settings and sometimes even better.

6.6 Preliminary Assessment

It is obviously difficult to isolate the effects of payment method and contractual hybrid mode on the different general outcome parameters. Many confounding variables, like competition and bargaining patterns, play a significant role. Incentive compatibility seems to be of limited importance, as far as access is concerned. With regard to contracting only the aspect accessibility seems to be influenced in a relevant manner. Thus, in a first step selective contracting reduces access, whereas in a second step consumer demand and competition force insurers to systematically contract providers to ensure adequate access in all regions they operate in. Fee-for-service provides almost no incentives for controlling costs, and thus rising costs are not very surprising. The need to contract with insurers on a longer term basis does not seem to hold costs down either, whereas market power and competition aspects play such an important role. Some aspects, like the media enforced quality stewardship of insurers, benefit the general quality of health care delivery. Insurers would less likely take on this role if there was not a strong contractual responsibility which is given through the hybrid construct.

What does all this mean for the overall goal to have basic health care for everybody? The current payment system does not support it, especially through the negative effect on costs and the unclear effects on the quality measures conducted by providers. Insurer-provider contracting helps to define a basic benefit catalogue which excludes excessively expensive procedures but maintains a sufficient quality level. Nonetheless, hybrid contracting itself does not seem to support the goal to make this basic health care available to everybody. Although improving access to care for some, especially in densely populated and richer areas, rural regions seem to loose out. Furthermore, there is no beneficial effect on costs which would make healthcare affordable to a larger group of people.[394]

[394] This is supported by the fact that in 2004 about 16 % or 1.3 million non-elderly North Carolinians were without insurance coverage; cf. *Silberman, Hooker Odom et al.* 2006, p. 184. Also see *Silberman, Hooker Odum et al.* 2005, pp. 111-119.

7 Summary of Findings and Discussion

7.1 Approach

This chapter provides a direct confrontation of theory with reality as observed in North Carolina. First, assumptions and predictions are evaluated. The focus is especially laid on discrepancies, and trying to elaborate their implications. Secondly, some potential reasons for these findings are given. This leads directly to the next section which highlights limitations of this study and identifies areas which might benefit from further research.

Table 3 and Table 4 present synopses of the various assumptions and predictions, respectively, which were made in the course of this paper. In a highly simplified way these tables contrast the theory-based findings with the observations and perceptions collected in North Carolina. Consequently, the classifications should not be regarded as a very precise and as the only possible conclusion of this discussion. In fact, the main purpose is to identify discrepancies between theory-based statements and real-world experience in a concise manner.

7.2 Theory versus Reality in North Carolina

7.2.1 Assumptions

In Table 3 key assumptions are grouped into the two main categories *incentive compatibility* and *organizational form*.[395]

[395] At this point, only assumptions on the peculiarity of parameters are considered.

ASSUMPTIONS with regard to		based on	**Theory**	**North Carolina**
Incentive Compatibility				
Measurability			difficult	difficult
Information asymmetry			high	high
Risk for	small providers		high	high
	large providers		**low**	**ambiguous**
	insurers		low	low
Risk attitude of	small providers		averse	averse
	large providers		neutral	neutral
	insurers		neutral	neutral
Variables of objective function				
Provider	income		yes	yes
	quality		yes	yes
	effort		yes	yes
Insurer	income		yes	yes
	quality		**yes**	**unclear**
Organizational Form				
Specificity of investments				
Provider	site specificity		none	none
	physical assets		low	low
	human assets		low	low
	dedicated assets		**moderate**	**significant**
	intangible assets		none	none
Insurer	site specificity		low	none
	physical assets		low	none
	human assets		low	none
	dedicated assets		none	none
	intangible assets		low	none
Uncertainty	externally		**moderate**	**low**
	internally from providers		moderate	moderate
	insurers		moderate	moderate
Frequency			high	high

Table 3: Comparison of Theory and Reality with regard to Assumptions
Source: Own illustration.

Most of the first group's assumptions on *incentive compatibility* seem to fit fairly well, although one assumption may have to be stated more clearly: In chapter 3.3.3.3 it is concluded that large providers are risk neutral, for which, in addition to large hospitals, physi-

cian networks were named as examples. However, at least in the way physician networks operate under North Carolinian and federal law, a substantial financial risk remains with the individual physician, even if she is part of a large network. This means that physicians who are also part of a network have to be considered as risk averse, depending on the circumstances.

Of the two objective functions defined in chapter 3.3.3.2 the function for providers, for which income, quality and efforts are decisive parameters, has been confirmed. On the insurers' side, the quality parameter needs further consideration. The quality aspect does not seem to feed directly into the players' utility score. Quality seems to be of significant, but indirect relevance for the insurer, mainly via marketing and public relations considerations. A more precise definition of the term 'quality' would be necessary to see if the results of this particular form of quality motivation meets consumers' interests. However, as interviewees made differing statements, this remains unclear at this stage.[396]

The second part of Table 3 refers to aspects related to *organizational form*. On the provider side, dedicated assets are the only parameter with a noteworthy discrepancy. In the theory part of this paper, dedicated assets have been identified as a potential source of moderate relation-specific investments. However, the interviews have indicated that this is a very significant aspect for providers, too. Their ability to flexibly adjust capacities seems to be limited. Specificity of investments on the insurer side was assumed to be fairly low, but across all parameters the perception gained in the interviews is that it is most likely even lower than anticipated or that there is none at all. Thus, although slightly overestimated, the general assessment of specific investments, stating only a very low degree of specificity, is accurate. External uncertainty is perceived to be very low as well.

7.2.2 Predictions

Predictions are summarized in Table 4. Thereby the choice of *payment method and contractual mode* targets the first part of the research question, *societal impact* the second part.

Considering the trade-off between incentive intensity and risk premium the prediction for small and thus risk averse providers was a significant cost-sharing component as part of the *payment method*. Here, it is not surprising that capitation payments (for example in form of non-group HMO plans which contract physicians on a capitation basis) are almost not present at all. However, the fact that insurers in North Carolina pay their small providers (i.e. physicians) purely on a fee-for-service basis that equates a complete cost sharing has

[396] For the reasons given in chapter 3.2.4, no more precise definition of quality was elaborated, as this is beyond the scope of this paper.

not been expected. As far as only those parameters are considered which were developed in the theory part of this paper, this indicates that the implemented payment mode is not efficient. Unfortunately, only limited information could be collected on large providers (i.e. especially hospitals). Thus, no final assessment can be made with regard to this aspect. However, it seems as if the mix of different payment systems as described in chapter 6.4.4.1 could potentially accommodate an incentive compatible scheme.

PREDICTIONS with regard to	based on	**Theory**	**North Carolina**
Payment Method and Contractual Mode			
Payment with …… cost sharing			
for small providers		**significant**	**complete**
for large providers		**low**	**unclear**
Hybrid		yes	yes
Societal Impact			
Access	availability	**moderate positive**	**none**
	accessibility	**moderate positive**	**ambiguous**
	affordability	**moderate positive**	**low positive**
Costs		**positive**	**ambiguous**
Quality		**moderate positive**	**ambiguous**
Basic coverage for everybody by			
defining basic		yes	yes
enabling everybody		**yes**	**ambiguous**

Table 4: Comparison of Theory and Reality with regard to Predictions
Source: Own illustration.

It is noteworthy that a hybrid arrangement is the efficient *contractual mode* not only according to theory, but that this mode has actually been realized by the insurers in North Carolina. Although HMOs are also present in other parts of the United States, it seems likely that such organizations can prosper only under very specific circumstances. This is supported by the fact that besides health care no other industry vertically integrates insurance and provision functions.[397]

With regard to *societal impact*, theory-based predictions were slightly more optimistic than could be confirmed. Although all of them estimated to be moderately influenced in a positive way, the access criteria did not live up to the expectations. Thus, no effect on availability has been observed and affordability is likely to be influenced only on a low level. Acces-

[397] Cf. *Cutler and Zeckhauser* 2000, p. 567.

sibility is improved for some, especially for people in urban and affluent areas, whereas rural regions are likely to suffer, consequently showing an ambiguous picture.

Although theory predicted a positive effect on costs, especially based on ex ante incentives, but at least to a low degree also through ex post control measures, the observed facts are ambiguous. First of all, the use of a fee-for-service method does not restrain the rising costs. Secondly, although insurers apply cost control measures within their contractual relations they do not strive to realize all potential savings.

The reliance on ex post measures for quality control indicates that insurers forgo potential quality achievements, although overall quality outcomes seem to be slightly positive. This aspect might need further investigation.[398]

Focusing on the overall societal goal to ensure basic coverage for everyone, insurers seem to do a fairly good job of defining a basic but sufficient service. However, the results on enabling everyone to have basic health care are ambiguous. On the one hand, taking an optimistic point of view, there is a positive cost effect, which makes it easier for public entities to provide subsidies for people in financial need. On the other hand, the performance on the access side is not very convincing, potentially bringing even more people into situations in which they have to rely on public support.

Although most assumptions seem to be on target, the predictions are less precise. Does this mean that the model does not identify the most incentive compatible and cost efficient solution, or that North Carolinian insurers decide against these specific aspects in favor of other factors? The following sections cover some potential explanations.

7.3 Potential Explanations

7.3.1 Interdependency of Organizational Form and Parameters

A potential fundamentally critical observation made during the course of this research project was the fact that specificity of investments was frequently created through the mode of organization which had been chosen, thus reversing the dependency relation of the model. In other words: The stronger the contractual integration is – locating the mode still within the boundaries of a hybrid model, but closer to a hierarchical structure by assigning more powers to the insurer – the more relation-specific features are generally implemented. This

[398] Similar conclusions can be found elsewhere: "Selective contracting has allowed managed care plans to obtain lower prices from hospitals. This finding is generalizable beyond California and is stronger when there is more competition in the hospital market. (…) Little research on the effects on quality has been undertaken, but preliminary evidence suggests that hospital quality has not declined and may have improved." *Morrisey* 2001, p. 191.

can be reporting procedures, more sophisticated clinical guidelines, or internal review panels – all of which require relation-specific investments.

Considering a market without high concentration on the provider side, a potential line of argument could thus be similar to the following: A moderate, but significant degree of internal uncertainty triggers the need for stronger ex post control, as ex ante incentive alignment does not seem to be a favored option. This ex post control is achieved by the creation of certain bureaucratic structures which support the contractual relationship, thus entering a hybrid mode. This step can de facto be mandated by the insurers because they are in a stronger position than providers. By making relation-specific investments the need for safeguarding the relationship and thus for stronger control measures increases even further. In this context it is important that the relation-specific investments are almost exclusively made by (frequently small) providers, thus giving the insurance companies an even stronger position. This creates a significant unbalance, which is contradictory to *Ménard* 2005, who argues that hybrids have a potential to overcome many contractual hazards efficiently as they create *mutual* dependency.[399] The only option for providers seems to be to consolidate and increase their bargaining power.

Although further investigation of this argument would help to improve and validate the model, at this stage it does not seem to disqualify any conclusions, especially as in chapter 6.4.2 precautions are taken to minimize the effects of this interdependency.

7.3.2 Relation of Incentive Compatibility and Organizational Form

In the course of this paper two different aspects, ex ante incentive compatibility and ex post control measures with a strong focus on transaction cost efficiency, are applied. So far these two issues have been considered as largely independent. However, it has to be evaluated whether incentive compatibility through an according payment system and transaction cost efficiency are complementary, or if they present a trade-off that potentially could confound results.

The first option seems to be more likely for several reasons. No matter which contractual mode is chosen, transaction costs rise with an increase in specificity and, in this context especially relevant, in uncertainty. Thus, any measures that decrease uncertainty also reduce transaction costs. Consequently, a payment system which reduces internal uncertainty alleviates the need for ex post measures and thus allows for a less strongly integrated contractual form. This again is quite likely to positively affect providers that then have to assume less relation-specific investments. However, some basic bureaucratic support of a hybrid

[399] Cf. *Ménard* 2005, pp. 297-298.

model benefits the capability of a working incentive pay system. Otherwise a relatively high degree of cost sharing has to be accepted, due to the risk-averseness of smaller providers. To fine-tune and maintain this delicate balance between incentive strength and risk premium a reliable stream of information and data which can be validated is required, a function which can best be facilitated by some form of hybrid.

Consequently, rather than presenting a trade-off, transaction-efficient contractual hybrids and incentive compatible payment methods seem to form a beneficial symbiosis.[400]

7.3.3 Flawed Assessment of Parameters

Another reason for the discrepancies between theory-based predictions and real results are the assumptions which were made in the first place. If the assumed characteristics of certain parameters are different from the ones observed, it is quite likely that the derived predictions are inaccurate as well. Consequently, insurers might still act in accordance with the research hypothesis.

The first discrepancy in Table 3 with regard to risk and risk attitude is not very severe. It remains unlikely that even for small providers the incentive pay component is completely eliminated.

The unclear interpretation of the quality component of the insurer's objective function is likely to explain some of the less positive than expected outcomes on a societal level. A smaller than expected interest of insurers into quality issues could explain the prevalence of fee-for-service which is not suitable to achieve an optimal quality level. On a larger scale, it might be an indicator that insurers do not necessarily act as the perfect agents of consumers, as assumed for methodological reasons in chapter 3.3.3.1.

Other discrepancies only relate to transaction cost aspects and are marginal. Furthermore, the contractual mode does present a match between theory and observed reality.

Thus, a flawed assessment of parameters does not seem to be able to explain all discrepancies in the predictions section. Besides assessing the chosen parameters inadequately, selecting wrong parameters in the first place could pose another reason for inconsistent conclusions. The following chapter evaluates this important aspect.

7.3.4 Omission of Relevant Parameters in the Model

7.3.4.1 Revenue Consequences

The economic theory used in this paper focuses almost exclusively on transaction costs.[401] Acknowledging the limitations of this approach, this still seems to be a reasonable attempt,

[400] This is supported through findings of *Robinson, Shortell et al.* 2004, pp. 1589-1606, who investigate the incentive compatibility within different types of physician organizations.

especially as it might shed some light on an area which has not yet received sufficient attention, as *Williamson's* conclusion suggests: "(…) first-order economizing – effective adaptation and elimination of waste – has been neglected. Adaptation is especially crucial."[402]

Nonetheless, various other aspects like economies of scope, or generally the consideration of revenues obviously play a decisive role in any management decision. Therefore they cannot be completely disregarded at this point. Focusing again on discrepancies between theory and observations from North Carolina, the aspect of revenue consequences may help to explain some of the insufficiencies with regard to the prediction of societal outcomes. Theory indicates that a hybrid mode, implicitly meaning selective contracting, has a positive impact on accessibility. However, although a hybrid structure reduces the risk of investments in remote, rural areas – thus being still the relatively most efficient option of the three generic contractual modes – the low (if any) profitability of a business endeavor in such a region outweighs these benefits.

This is also relevant for the aspects affordability and costs. Although the cost efficient implementation of utilization review and of similar measures helps to control costs it does not mean that an insurance carrier has the economic capability to provide sustainable coverage for any pocket.

Though these issues were not considered in this paper, their potentially significant influence indicates the need for further investigation before a final conclusion can be drawn.

7.3.4.2 Market Characteristics

Another area of future research is market characteristics. The sheer frequency with which issues such as concentration, competition, and market and bargaining power are mentioned in this paper highlights the importance of this matter. Although New Institutional Economics provide tools to adjust the theory model for any of these aspects the scope of this project has limited the analysis to focus on the main research questions.

An aspect related to the insurers' objective function is their ability to pass on price hikes to consumers. Although increasing profits is one of their objectives, they can achieve this goal without being forced to apply pressure on prices in order to keep costs low.

Another key concern is that, even if the results of the model fit fairly well, the model might not catch other aspects that dominate considerations like transaction costs. There were multiple indications that this might be the case. When asked if he believed that issues like market power dominate questions of renegotiation risk of contracts, an interviewee's answer

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[401] For reasons why this paper maintained this rather narrow focus, see footnotes 100 and 124. *Ménard* 2005, p. 284, summarizes some of the criticism directed towards the transaction cost approach.

[402] *Williamson* 1991, p. 276.

was a clear cut "[s]ure!"[403] Several (quasi) bilateral monopolies in the North Carolinian market and a bargaining process that is frequently characterized as a backward accounting method do strongly suggest that these factors play an extremely relevant role, not only in general, but also with regard to the way payment systems are set up and the mode in which contractual relations are organized. Furthermore, conclusions like the prospect of cost savings can only be maintained in a sustainable manner, if a competitive market environment without market entrance and exit barriers exists.

7.3.4.3 Other Factors

Another source of influence which has not been explicitly accounted for are informal institutions of any kind. For example, the self-concept of the medical profession has significant impact on which form of organizations they prefer. Ideals like autonomy make it generally hard to mandate anything on physicians. In consequence the opposition of the professional bodies occasionally actively discourages or even prohibits physicians to participate in certain types of organizations, as for example seen in the resistance against group model HMOs. Economic considerations often take the backseat under such circumstances. This might explain why the fee-for-service system has prevailed, although it does not produce optimal results.

Furthermore, it was indicated that insurers know about the advantages of capitations payments and appreciate those. However, the risk of unintended consequences like cream-skimming is seen as too high.[404] It is unclear if the measures provided in a hybrid are indeed not sufficient or if insurers for other reasons do just not want to face the challenges which come with such a payment system.

Additionally, there remains a vast array of other potential explanatory variables. Thus, this section is concluded with a quote of *Ménard* 2005 which gives insight into current academic focus and aligns with the author's opinion on these issues: "[We] need more empirical studies, identifying and measuring relevant proxies in order to assess the role of these variables and their impact. (…) [M]ost tests so far have focused on the role of specific investments, at the sector level. Looking at other variables and digging into data at the firm level or at the level of inter-firm agreements involve difficulties that need to be dealt with."[405]

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[403] Interview.

[404] For the incentives posed through capitation payment see *Scott* 2000, p. 1188. Insurers' attitude is best exemplified by the quote: "So I would say – capitation is perhaps the purest form of model, but I think you have to have more control over the physicians directly to actually make that work." Interview.

[405] *Ménard* 2005, p. 310. Similar *Holmstrom and Roberts* 1998, p. 75; "ownership patterns are responsive to, among other things, agency problems, concerns for common assets, difficulties in transferring knowledge, and the benefits of market monitoring. These suggestions are tentative, and we confess that they

7.4 Further Limitations and Alternative Approaches

Several limitations have been raised in the preceding chapters, mostly directed at the economic theory which was used and the confounding variables that have been encountered when investigating the situation in North Carolina. Generally, it has to be stated that the scope of this research was broad, comprising various aspects and different methodological approaches. Thus, many aspects could not be elaborated in desirable depth.

Other limitations come with the way the real-world example is approached. North Carolina has various specific characteristics which make the results difficult to generalize. Although the interviews provide a substantial amount of information, several caveats apply. The number of interviewees is fairly low and although they were carefully selected for their expertise and their statements were validated through literature research and independent experts, a bias is likely to remain. For example, no large hospital system was represented.

For all these reasons it seems to be sound to understand this paper as an exploratory research project. More precisely targeted investigations can be conducted with the insight gained from this project. In addition to a new round of qualitative interviews with more focused questions and a larger number of participants, it might be interesting to see if empirical data can be obtained to validate some of the assumptions made in a more robust and rigorous manner.

8 Conclusion

Among the various ways the stewardship role for patients can be assigned in a health system, the designation of private health insurers is one option. In order to evaluate the implications of such an approach, the scope of this paper was to test the hypothesis as outlined in chapter 1.2: *In a market driven health system insurers find efficient ways of coordinating their contractual relationships with providers by pursuing appropriate forms of vertical integration. The thereby emerging organizations do this by efficiently overcoming problems posed through diverging interests and incentives. This helps to accomplish social goals as defined by the society, i.e. guaranteeing all citizens basic coverage.*

To this end, first a theory-based framework has been developed, which is based on principal-agent and transaction cost theory. This has not only highlighted a range of parameters which had been assumed to be relevant for the decision making of actors under such circumstances. It has also pointed out – in abstract terms – how incentive compatibility can be achieved and which generic modes of organizing a contractual relationship are available.

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are mostly without good theoretical foundation. They are offered in the hope of inspiring new theoretical research."

For the latter, specificity of investments has been identified as a particularly important parameter to determine the efficient mode for each constellation.

The theory-based specification of the various parameters for the health sector have highlighted the importance of uncertainty and found mild forms of specific investments.

Based on these findings, theory-based predictions have been made. Incentive compatibility is achieved through a payment system which combines a cost sharing with a residual component. To obtain efficient results the trade-off between incentive power and risk premium has to be fine-tuned according to the actors' risk attitudes. Due to a relatively low degree of specificity of investments and a moderate level of uncertainty as well as a high frequency of transactions on the insurance side, a hybrid is the efficient contractual mode.

In the context of the research question this indicates an efficient way to coordinate the contractual relationship as well as how to overcome diverging incentives in an efficient manner. Furthermore, taking together both aspects, the impact on the overall societal goal to guarantee basic health care for everybody seems to be at least slightly positive.

As the aim had not only been to make theory-based conclusions, but also to validate these with results in a real-world scenario, North Carolina has served as a benchmark. The excursus on the U.S. health system has highlighted aspects which are important to understand the current situation, ranging from the role of public programs to the significant concentration in the health insurance market.

Of the various assumptions and parameters under consideration most have been confirmed through the observations made during the interviews and retrieved from North Carolina specific literature. The characterization of providers' risk attitudes would certainly benefit from greater differentiation which allows for the unique situation of physicians in networks. The largest discrepancy is related to the insurers' objective function and the role quality aspects play in it. In addition, the degree of relation-specific investments even seems to be slightly lower than expected.

The findings with regard to incentive compatibility and ex ante incentivizing revealed a major discrepancy. Only hospital payments, which use a mix of residual and cost sharing methods, seem to follow incentive compatibility considerations, although this could not be fully clarified. Physician payments rely completely on a fee-for-service system and therewith eliminate almost all efficiency oriented ex ante incentives. Although theory predicted a relatively high cost-sharing component this clearly is a contradiction and indicates the choice of a payment method that does not align incentives between insurer and provider and thus causes inefficiencies.

Contrary to this, the findings with regard to the contractual mode are in accordance with theory which predicted hybrid organizations. Insurers offer one to two year contracts, which line out the relationship in general terms. Annexes are used to define details and bureaucratic structures, like peer review panels, are in place. In summary, this seems to be a close to ideal match with theory-based predictions.

Looking at the outcomes of these arrangements on a societal level, the results are not as good as expected, although overall there seems to be a slightly positive effect. Insurers do work to eliminate unnecessary and expensive treatments from their benefit catalogue, but not everybody can necessarily benefit, as for example access in rural areas may suffer.

It is not possible to finally assess the situation in North Carolina, as a range of other factors has been identified which quite likely interfere with the results. Unfortunately, the scope of this paper has not allowed the investigation of all of them in the necessary depth. Market power and concentration, the exclusion of revenue consequences, the role of public programs, and the assumption of perfect agency by insurance companies are only some of the caveats that apply. So it may be quite likely the case that the predictions of the transaction cost model match well with the results in North Carolina, but that the true reasons are other ones. It could be that physician opposition and administrative easiness are the only reasons for the presence of pay-for-performance, but other factors could have influenced these decisions as well. Finally, the case of North Carolina is very specific and may not represent average markets very well.

Thus, this paper can neither finally confirm nor discard the hypothesis stated at the beginning of this chapter. Further research is needed to investigate these issues and to hopefully produce better evidence. This paper should provide a good basis for such an undertaking, as it gives an overview of a wide range of aspects.

Appendix

Table 5: Interview Outline

Question 1:

How would you characterize the competitiveness of the health care market in North Carolina since 1993 with regard to its different segments (group/individual insurance and providers)?

Prompt 1:

Contrasting entrepreneurial freedom and regulation – is it a rather free market?

Question 2:

2.1 Looking at the relationship between insurance company and provider. Which party is the one that is more likely to offer a contract to the other one?

2.2 Is it likely that after the contract has been established the provider/insurer shows opportunistic behavior and if yes, which measures are commonly taken to avoid this?

Question 3:

Looking at the trends since 1993 – how have insurance companies' contractual relations with providers of medical services changed and what were the main reasons for these developments?

Prompt 1:

Have certain new entrepreneurial insights supported these changes?

Question 4:

4.1 Do (contractual) relations between insurance companies and providers vary with regard to specificity of investments?

4.2 Do these differences with regard to specificity of investments result in different kind of contracts?

Question 5:

5.1 What are the main effects of competition and insurer-provider contracting on consumer?

5.2 Looking at different forms of structuring the insurer-provider relationship (reimbursement, managed care, HMOs) – are there specific advantages or disadvantages for consumers that go along with one form or another?

Question 6:

The late Milton Freedman once said: "The social responsibility of business is to increase its profits".[406] What are your thoughts about this statement?

[406] *Friedman* 1970, p. 32.

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